CHAPTER 7: PREVENTION PROGRAM (PROGRAM 3)

Many of you will need to do little that is new to comply with the Program 3 prevention program, because you already have the OSHA PSM program in place. Whether you're building on the PSM standard or creating a new program, keep these things in mind.

- EPA and OSHA have different legal authority — EPA for offsite consequences, OSHA for on-site consequences. If you are already complying with the PSM standard, your process hazard analysis (PHA) team will have to consider whether new hazards could affect the public or the environment offsite. For example, protection measures that are suitable for workers (e.g., venting releases to the outdoors) may be the very kind of thing that imperils the public.

- Integrate the elements of your prevention program. You must ensure that a change in any single element of your program leads to a review of other elements to identify any effect caused by the change.

- Most importantly, make accident prevention an institution at your site. Like the entire risk management program, a prevention program is more than a collection of written documents. It is a way to make safe operations and accident prevention the way you do business everyday.

7.1 PROGRAM 3 PREVENTION PROGRAM AND OSHA PSM

The Program 3 prevention program includes the requirements of the OSHA PSM standard. Whenever we could, EPA used OSHA's language verbatim. However, there were a few terms that EPA had to change to reflect the differences between its authority and OSHA's. For example, OSHA regulates to protect workers; EPA's responsibility is to protect public health and safety and the environment. Therefore, an "owner or operator" subject to EPA's rule must investigate any catastrophic release "that presents imminent and substantial endangerment to public health and the environment," but an OSHA "employer" would focus its concerns on the workplace. To clarify these distinctions, we deleted specific references to workplace impacts and "safety and health" contained in OSHA's PSM standards. We also used different dates and references where appropriate. Exhibit 7-1 compares terms in EPA's rule with their counterparts in the OSHA PSM standard.

EXHIBIT 7-1
COMPARABLE EPA AND OSHA TERMS

OSHA TERM	EPA TERM
Highly hazardous substance	Regulated substance
Employer	Owner or operator
Facility	Stationary source
Standard	Rule or part

There are twelve elements in the Program 3 prevention program. Each element corresponds with a section of subpart D of part 68. Exhibit 7-2 sets out each of the twelve elements, the corresponding section numbers, and OSHA references. Two OSHA elements are not included. Emergency response is dealt with separately in part 68; the OSHA trade secrets requirement (provision of trade secret information to employees) is beyond EPA's statutory authority.

EXHIBIT 7-2
SUMMARY OF PROGRAM 3 PREVENTION PROGRAM
(40 CFR PART 68, SUBPART D)

SECTION	TITLE	OSHA PSM REFERENCE
§ 68.65	Process Safety Information	PSM standard § 1910.119(d).
§ 68.67	Process Hazard Analysis (PHA)	PSM standard § 1910.119(e).
§ 68.69	Operating Procedures	PSM standard § 1910.119(f).
§ 68.71	Training	PSM standard § 1910.119(g).
§ 68.73	Mechanical Integrity	PSM standard § 1910.119(j).
§ 68.75	Management of Change	PSM standard § 1910.119(l).
§ 68.77	Pre-Startup Review	PSM standard § 1910.119(I).
§ 68.79	Compliance Audits	PSM standard § 1910.119(o).
§ 68.81	Incident Investigation	PSM standard § 1910.119(m)
§ 68.83	Employee Participation	PSM standard § 1910.119(c).
§ 68.85	Hot Work Permit	PSM standard § 1910.119(k).
§ 68.87	Contractors	PSM standard § 1910.119(h).

OSHA provided guidance on PSM in non-mandatory appendix C to the standard. OSHA has reprinted this appendix as PSM Guidelines for Compliance (OSHA 3133). The OSHA guidance is reproduced, reordered to track part 68, in Appendix D. The remainder of this chapter briefly outlines the major requirements and provides a discussion of any differences between EPA and OSHA. In some cases, further guidance is provided on the meaning of specific terms. For more detailed guidance regarding PSM requirements, you should refer to the OSHA guidance in Appendix D.

QS &AS
IMPLEMENTATION AND PROGRAM LEVEL

Q. My process is a series of storage and process vessels, connected by piping, containing several regulated substances, with a few co-located tanks of other substances. Do I have to implement one prevention program to cover all aspects of the process even if different operators, different process chemistry, and different hazards are involved in various parts of the process?

A. You should implement the program in the way that makes sense to you. For a complex process such as yours, you may need to divide the process into sections (e.g., production units for particular products, storage units) for the PHA and compliance audits, to keep the analyses manageable. Operating and maintenance procedures (and the training in these procedures) should be developed for operating units; combining procedures for different types of units into a single document may make them harder to use; training operators in procedures they do not need would waste time and perhaps confuse operators. You may want to collect and store process safety information by individual units to make it easier to use. Other parts of the program (contractors, employee participation, procedures for pre-startup, management of change, and hot work) are likely to be common to all parts of the process. In your RMP, you will report a single prevention program for each covered process, whether you divide up the process or not.

Q. I have a tank with 1,000,000 pounds of toluene diisocyanate (TDI), which is covered under the RMP rule, but not under OSHA PSM. Considered by itself, the TDI would be Program 2 for EPA. The tank, however, is close to equipment that has chlorine above the applicable threshold and is subject to OSHA PSM and Program 3. Should the TDI tank be considered part of the same process as the equipment containing the chlorine? How does this affect the program level?

A. If a release event involving one regulated substance, such as a fire, explosion, collapse or collision, could also involve the release of another regulated substance or interfere with mitigation of such a release, then both substances, and their associated vessels and equipment are considered part of a single process. When you do your PHA for the process, you must evaluate whether a release event involving the TDI tank could have such effects on the chlorine, or whether a release event involving the chlorine could affect the TDI tank. If a single release event could involve both the TDI and chlorine, then both are subject to both OSHA PSM and Program 3.

7.2 PROCESS SAFETY INFORMATION (§68.65)

Exhibit 7-3 briefly summarizes the process safety information requirements.

EXHIBIT 7-3
PROCESS SAFETY INFORMATION REQUIREMENTS

For chemicals, you must complete information on:	For process technology, you must provide:	For equipment in the process, you must include information on:
✔Toxicity ✔Permissible exposure limits ✔Physical data ✔Reactivity ✔Corrosivity ✔Thermal & chemical stability ✔Hazardous effects of inadvertent mixing of materials that could foreseeably occur	✔A block flow diagram or simplified process flow diagram ✔Information on process chemistry ✔Maximum intended inventory of the EPA-regulated chemical ✔Safe upper & lower limits for such items as temperature, pressure, flows, or composition ✔An evaluation of the consequences of deviation	✔Materials of construction ✔Piping & instrument diagrams (P&IDs) ✔Electrical classification ✔Relief system design & design basis ✔Ventilation system design ✔Design codes & standards employed ✔Safety systems ✔Material and energy balances for processes built after June 21, 1999

WHERE TO GO FOR MORE INFORMATION

Diagrams. You may find it useful to consult Appendix B of OSHA's PSM final rule (for example block flow and process flow diagrams), computer software programs that do P&IDs or other diagrams.

Guidance and Reports. Various engineering societies issue technical reports relating to process design. Other sources you may find useful include:

- *Guidelines for Process Safety Documentation*, Center for Chemical Process Safety of the American Institute of Chemical Engineers 1995.
- *Emergency Relief System Design Using DIERS Technology,* American Institute of Chemical Engineers, 1992.
- *Emergency Relief Systems for Runaway Chemical Reactions and Storage Vessels: A Summary of Multiphase Flow Methods*, American Institute of Chemical Engineers, 1986.
- *Guidelines for Pressure Relief and Emergency Handling Systems,* Center for Chemical Process Safety of the American Institute of Chemical Engineers, 1998.
- *Loss Prevention in the Process Industries*, Volumes I, II, and III, Frank P. Lees, Butterworths: London 1996.

Qs & As
Process Safety Information

Q. What does "materials of construction" apply to and how do I find this information?

A. You must document the materials of construction for all process equipment in a covered process. For example, you need to know the materials of construction for process vessels, storage vessels, piping, hoses, valves, and flanges. Equipment specifications should provide this information.

Q. What does "electrical classification" mean?

A. Equipment and wiring for locations where fire and explosion hazards may exist must meet requirements based on the hazards. Each room, section, or area must be considered separately. Equipment should be marked to show Class, Group, and operating temperature or temperature range. You must determine the appropriate classification for each area and ensure that the equipment used is suitable for that classification. The equipment covered includes transformers, capacitors, motors, instruments, relays, wiring, switches, fuses, generators, lighting, alarms, remote controls, communication, and grounding. Electrical classification will be included in equipment specifications.

Q. What does "relief system design basis" mean?

A. Relief systems include, but are not limited to, relief valves, relief headers, relief drums, and rupture disks. Design basis means documenting how the loads and sizes of the relief system, as well as inlet and outlet sizes, were determined. This includes a description of overpressure scenarios considered, the scenario that creates the largest load to be relieved, the assumptions used, and if the device meets a certain code. Relief devices on pressure vessels must conform to ASME codes. Industry codes (e.g., API RP 520) also provide guidance on scenarios that should be considered and on equations for sizing of devices. Scenarios you may need to consider include fire, blocked flow, control valve failure, overheating, power outage, tube rupture, and cooling water failure. For two-phase flow, you should review AIChE publications from the Design Institute for Emergency Relief Systems (DIERS).

Q. What do I have to do for material and energy balances?

A. For new processes, you must document both material and energy inputs and outputs of a process. For example, you would document the quantity of a regulated substance added to the process, the quantity consumed during the process, and the quantity that remains in the output. This requirement will not generally apply to storage processes.

7.3 PROCESS HAZARD ANALYSIS (§68.67)

Exhibit 7-4 provides a summary of the requirements for process hazard analyses (PHAs).

EXHIBIT 7-4
PROCESS HAZARD ANALYSIS REQUIREMENTS

The PHA must cover::	Techniques must be one or more of:	Other requirements:
✔Hazards of the process ✔Identification of previous, potentially catastrophic incidents ✔Engineering and administrative controls applicable to the hazards ✔Consequence of failure of controls ✔Siting ✔Human factors ✔Qualitative evaluation of health and safety impacts of control failure	✔What If ✔Checklist ✔What If/Checklist ✔Hazard and Operability Study (HAZOP) ✔Failure Mode and Effects Analysis (FMEA) ✔Fault Tree Analysis ✔Appropriate equivalent methodology	✔Analysis must be done by a team, one member of which has experience with the process, one member of which is knowledgeable about the PHA technique ✔A system must be developed for addressing the team's recommendations and documenting resolution and corrective actions taken ✔The PHA must be updated at least once every five years ✔PHAs and documentation of actions must be kept for the life of the process

EPA/OSHA DIFFERENCES

If your Program 3 process is also subject to OSHA PSM, you can use the PHA conducted for OSHA PSM compliance as your initial process hazard analysis for EPA purposes, provided you conducted your initial OSHA PHA prior to May 26, 1997 (the date by which all initial OSHA PHAs must have been completed). In such cases, you can also update and revalidate your PHA on OSHA's schedule, but your update should consider offsite impacts. Likewise, any initial PHA performed after May 26, 1997 must consider offsite impacts in order for it to satisfy EPA's requirements (see below).

Offsite impacts. You should consider offsite impacts when you conduct a PHA under EPA's rule (except for an initial PHA where you are using the PHA conducted for OSHA PSM). If you are in the Program 3 prevention program because you must comply with the PSM standard, you may not have fully considered offsite consequences because the focus of PSM is worker protection. Practically speaking, there should be few instances where the scenarios considered for OSHA fail to address offsite impacts. A well-done PHA should identify all failure scenarios that could lead to significant exposure of workers, the public, or the environment. The only issue that may require further consideration for Part 68 purposes is whether any

protection measures that are adequate for worker safety are inadequate for public and environmental safety.

Consider two circumstances — one where OSHA's PSM standard and EPA's risk management program rule lead to the same result, and another where protecting workers could mean endangering the public and the environment. For flammables, any scenario that could affect the public almost certainly would have the potential to affect workers; measures taken to protect your employees likely will protect the public and the environment. For toxics under PSM, however, you may plan to address a loss of containment by venting toxic vapors to the outside air. In each circumstance, a PHA should define how the loss of containment could occur. However, for EPA, the PHA team should reassess venting as an appropriate mitigation measure.

REJECTING TEAM RECOMMENDATIONS

You may not always agree with your PHA team's recommendations and may wish to reject a recommendation. OSHA's compliance directive CPL 2-2.45A(revised) states that you may decline a team recommendation if you can document one of the following: (1) the analysis upon which the recommendation is based contains relevant factual errors; (2) the recommendation is not necessary to protect the health of employees or contractors; (3) an alternative measure would provide a sufficient level of protection; or (4) the recommendation is infeasible. For part 68, you may also decline a recommendation if you can show that it is not necessary to protect public health and the environment.

UPDATING AND REVALIDATING YOUR PHA

For EPA and OSHA, you must update and revalidate your PHA at least once every five years. If your initial PHA was done for OSHA compliance, you may update and revalidate it every five years on the OSHA schedule, but make sure that your PHA update considers offsite impacts.

You should also update or revalidate your PHA whenever there is a new hazard or risk created by changes to your process. Such changes might include introducing a new process, process equipment, or regulated substance; altering process chemistry that results in any change to safe operating limits; or other alteration that introduces a new hazard. You might, for example, introduce a new hazard if you installed a gas pipeline next to a storage tank containing a regulated substance. Other candidates could be making changes in process constituents that increase the possibility of runaway reactions or polymerization. Or you may have made major process changes in order to comply with a revision to an industry design code or standard that you are subject to (i.e., your facility may be required to comply with revised code requirements by a state law, local law or the language in the code itself). EPA also recommends that you consider revalidating your PHA whenever adjoining processes create a hazard.

Remember that you have a general duty to prevent accidents and ensure safety at your source, which may require you to take steps beyond those specified in the risk management program rule.

Q & A
"REVISING" A PHA

Q. The rule states that I have to update my RMP whenever I revise a PHA. What constitutes a revised PHA? Every time I go through management of change procedures I make a notation in the PHA file for the process, but would that constitute a revised PHA if the change did not affect the validity of the PHA?

A. All changes (except replacement in kind) are subject to the management of change of procedures. When processes undergo minor changes (e.g., minor rerouting of a piping run), information is typically added to a PHA file to reflect the change, even though the validity of the PHA is not affected by the modification. These minor changes and the addition of information about the change to the PHA file are not considered a 'revision' of the PHA under the part 68. Major changes that invalidate a PHA, leading you to 'update' or 'revalidate' the PHA so that it accurately reflects the hazards of the process, are considered a revision of the PHA under part 68.

WHERE TO GO FOR MORE INFORMATION

Appendix 7-A of this chapter provides a summary of each of the techniques, a description of the types of processes for which they may be appropriate, and estimates about the time and staff required for each.

Part 68 and OSHA PSM require that whichever technique or techniques you use, you must have at least one person on the PHA team who is trained in the use of the technique. Training on such techniques is available from a number of professional organizations as well as private companies. You may have staff members who are capable of providing this training as well. Many trade associations publish detailed guidance on methods for conducting a process hazard analysis. You might find the following documents useful.

- *Guidelines for Hazard Evaluation Procedures, 2nd Ed. with Worked Examples*, Center for Chemical Process Safety of the American Institute of Chemical Engineers 1992.
- *Evaluating Process Safety in the Chemical Industry*, Chemical Manufacturers Association.
- *Loss Prevention in the Process Industries*, Volumes I, II, and III, Frank P. Lees, Butterworths: London 1996.
- *Management of Process Hazards* (RP 750), American Petroleum Institute.
- *Risk-Based Decision Making (Publication 16288)*, American Petroleum Institute.

Qs & As
OFFSITE CONSEQUENCES

Q. What does EPA mean by "consider offsite consequences"? Do we have to do an environmental impact assessment (EIA)?

A. EPA does not expect you to do an EIA. Potential consequences to the public and the environment are already analyzed in the offsite consequence analysis. In the PHA, EPA only expects you to identify any failure scenarios that could lead to public exposures and to examine whether your strategies are adequate to reduce the risk of such exposures.

Q. If I need to revise a PHA to consider offsite consequences, when do I have to do that?

A. In general, for a PHA originally completed to meet the requirements of OSHA PSM that did not consider offsite consequences, you should revise the PHA to consider offsite consequences when you update that PHA. Any PHA for an RMP- covered process completed or updated after August 19, 1996, when part 68 was effective, should examine offsite consequences.

7.4 OPERATING PROCEDURES (§68.69)

Exhibit 7-5 summarizes what your operating procedures must address. Operating procedures must be readily accessible to workers who operate or maintain the process. You must review operating procedures as often as necessary to assure that they reflect current practices and any changes to the process or facility. You must certify annually that the operating procedures are current and accurate.

EXHIBIT 7-5
OPERATING PROCEDURES REQUIREMENTS

Steps for each operating phase	Operating limits	Safety & health considerations	Safety systems & their functions
✔Initial startup ✔Normal operations ✔Temporary operations ✔Emergency shutdown ✔Emergency operations ✔ Normal shutdown ✔Startup following a turnaround or emergency shutdown ✔Lockout/tagout ✔Confined space entry ✔Opening process equipment or piping ✔Entrance into the facility	✔Consequences of deviations ✔Steps to avoid, correct deviations	✔Chemical properties & hazards ✔Precautions for preventing chemical exposure ✔Control measures for exposure ✔QC for raw materials and chemical inventory ✔Special or unique hazards	✔Address whatever is applicable

WHERE TO GO FOR MORE INFORMATION

Chapter 7 of this document provides descriptions of each operating phase and when these phases may not apply to certain operations.

- *Guidelines for Process Safety Fundamentals for General Plant Operations*, Center for Chemical Process Safety of the American Institute of Chemical Engineers 1995.
- *Guidelines for Safe Process Operations and Maintenance*, Center for Chemical Process Safety of the American Institute of Chemical Engineers 1995.
- *Guidelines for Writing Effective Operating and Maintenance Procedures*, Center for Chemical Process Safety of the American Institute of Chemical Engineers 1996.

7.5 TRAINING (§68.71)

You are required to train new operators on the operating procedures and cover health and safety hazards, emergency operations, and safe work practices applicable to the employee's tasks. At least every three years you must provide refresher training (you must consult with employees involved in operating the process to determine the appropriate frequency). Finally, you are required to determine that each operator has received and understood the training and keep a record for each employee with the date of the training and the method used to verify that the employee understood the training.

WHERE TO GO FOR MORE INFORMATION

- *Guidelines for Process Safety Fundamentals for General Plant Operations*, Center for Chemical Process Safety of the American Institute of Chemical Engineers 1995.
- *Guidelines for Technical Planning for On-Site Emergencies*, Center for Chemical Process Safety of the American Institute of Chemical Engineers 1995.
- *Federally Mandated Training and Information (Publication 12000)*, American Petroleum Institute.

7.6 MECHANICAL INTEGRITY (§68.73)

You must have a mechanical integrity program for pressure vessels and storage tanks, piping systems, relief and vent systems and devices, emergency shutdown systems, controls, and pumps. Exhibit 7-6 briefly summarizes the other requirements for your mechanical integrity program.

WHERE TO GO FOR MORE INFORMATION

Guidance and Reports. Other sources of guidance and reports you may find useful include:

- *Guidelines for Process Equipment Reliability Data with Data Tables*, Center for Chemical Process Safety of the American Institute of Chemical Engineers 1989.
- *Guidelines for Process Safety Documentation*, Center for Chemical Process Safety of the American Institute of Chemical Engineers 1995.
- *Pressure Vessel Inspection Code: Maintenance Inspection, Rating, Repair, and Alteration* (API 510), American Petroleum Institute.
- *Tank Inspection, Repair, Alteration, and Reconstruction (Std 653)*, American Petroleum Institute.

EXHIBIT 7-6
MECHANICAL INTEGRITY CHART

Written procedures	Training	Inspection & testing	Equipment deficiencies	Quality assurance
✔Establish & implement written procedures to maintain the integrity of process equipment.	✔Train process maintenance employees in an overview of the process and its hazards. ✔Make sure this training covers the procedures applicable to safe job performance.	✔Inspect & test process equipment. ✔Use recognized and generally accepted good engineering practices. ✔Follow a schedule that matches the manufacturer's recommendations or more frequently if prior operating experience indicates is necessary. ✔Document each inspection & test with: Date, inspector name, equipment ID, test or inspection performed, results.	✔Correct equipment deficiencies before further use of process equipment or whenever necessary to ensure safety.	✔Establish a QA program for new construction & equipment, newly installed equipment, maintenance materials, and spare parts & equipment.

7.7 MANAGEMENT OF CHANGE (§68.75)

Exhibits 7-7 briefly summarizes EPA's MOC requirements.

WHERE TO GO FOR MORE INFORMATION

- *Management of Change in Chemical Plants: Learning from Case Histories*, Center for Chemical Process Safety of the American Institute of Chemical Engineers 1993.
- *Plant Guidelines for Technical Management of Chemical Process Safety*, Center for Chemical Process Safety of the American Institute of Chemical Engineers 1992.
- *Management of Process Hazards (RP 750)*, American Petroleum Institute.

EXHIBIT 7-7
MANAGEMENT OF CHANGE REQUIREMENTS

MOC procedures must address:	**Employees affected by the change must:**	**Update process safety information if:**	**Update operating procedures if:**
✔Technical basis for the change ✔Impact on safety and health ✔Modifications to operating procedures ✔Necessary time period for the change ✔ Authorization requirements for proposed change	✔Be informed of the change before startup ✔Trained in the change before startup	✔A change covered by MOC procedures results in a change in any PSI required under EPA's rule (see § 67.65)	✔A change covered by MOC procedures results in a change in any operating procedure required under EPA's rule (see § 67.69)

7.8 PRE-STARTUP REVIEW (§68.77)

You must conduct your pre-startup safety review for new stationary sources or modified stationary sources when the modification is significant enough to require a change in safety information. You must conduct your pre-startup review before you introduce a regulated substance to a process, and you must address the items listed in Exhibit 7-8.

EXHIBIT 7-8
PRE-STARTUP REVIEW REQUIREMENTS

Design Specifications	Adequate Procedures	PHA/MOC	Training
✔Confirm that new or modified construction and equipment meet design specifications.	✔Ensure that procedures for safety, operating, maintenance, and emergencies are adequate and in place.	Perform a PHA and resolve or implement any recommendations for new process. Meet management of change requirements for modified process.	✔Confirm that each employee involved in the process has been trained completely.

7.9 COMPLIANCE AUDITS (§68.79)

You must conduct an audit of the process to evaluate compliance with the prevention program requirements at least once every three years. At least one person involved in the audit must be knowledgeable about the process. You must develop a report of the findings and document appropriate responses to each finding and document that deficiencies have been addressed. The two most recent audit reports must be kept on-site.

WHERE TO GO FOR MORE INFORMATION

- *Guidelines for Auditing Process Safety Management Systems*, Center for Chemical Process Safety of the American Institute of Chemical Engineers 1993.

7.10 INCIDENT INVESTIGATION (§68.81)

Exhibit 7-9 briefly summarizes the steps you must take for investigating incidents.

EXHIBIT 7-9
INCIDENT INVESTIGATION REQUIREMENTS

✔Initiate an investigation promptly.	Begin investigating no later than 48 hours following the incident.
✔Establish a knowledgeable investigation team.	Establish an investigation team to gather the facts, analyze the event, and develop the how and why of what went wrong. At least one team member must have knowledge of the process involved. Consider adding other workers in the process area where the incident occurred. Their knowledge will be significant and should give you the fullest insight into the incident. Ideally, employees who may serve as investigation team members should be trained in investigation techniques before an incident occurs.
✔Summarize the investigation in a report.	Among other things, the report must identify the factors contributing to the incident. Remember that identifying the root cause may be more important than identifying the initiating event. The report must also include any recommendations for corrective actions. Remember that the purpose of the report is to help management take corrective action.
✔Address the team's findings and recommendations.	Establish a system to address promptly and resolve the incident report findings and recommendations; document resolutions and corrective actions.
✔Review the report with your staff and contractors.	You must share the report - its findings and recommendations - with affected workers whose job tasks are relevant to the incident.
✔Retain the report.	Keep incident investigation reports for five years.

You must investigate each incident which resulted in, or could have resulted in, a "catastrophic release of a regulated substance." A catastrophic release is one that "presents an imminent and substantial endangerment to public health and the environment." Although the rule requires you to investigate only those incidents which resulted in, or could reasonably have resulted in, a catastrophic release, EPA encourages you to investigate all accidental releases. Investigating minor accidents or near misses can help you identify problems that could result in major releases if left unaddressed.

WHERE TO GO FOR MORE INFORMATION

- *Guidelines for Investigating Chemical Process Incidents*, Center for Chemical Process Safety of the American Institute of Chemical Engineers 1992.
- *Guide for Fire and Explosion Investigations (NFPA 921)*, National Fire Protection Association.

7.11 EMPLOYEE PARTICIPATION (§68.83)

The rule requires you to consult with your employees and their representatives on the conduct and development of process hazards analyses and other required process safety management elements. Exhibit 7-10 briefly summarizes what you must do.

EXHIBIT 7-10
EMPLOYEE PARTICIPATION REQUIREMENTS

✔Write a plan.	Develop a written plan of action regarding how you will implement employee participation.
✔Consult with employees.	Consult your employees and their representatives regarding conducting and developing PHAs and other elements of process safety management in the risk management program rule.
✔Provide access to information.	Ensure that your employees and their representatives have access to PHAs and all other information required to be developed under the rule.

7.12 HOT WORK PERMITS (§68.85)

Exhibit 7-11 briefly summarizes how to meet the hot work permit requirement.

EXHIBIT 7-11
HOT WORK PERMITS REQUIREMENTS

✔Issue a hot work permit.	You must issue this permit for hot work conducted on or near a covered process.
✔Implement fire prevention and protection.	You must ensure that the fire prevention and protection requirements in 29 CFR 1910.252(a) are implemented before the hot work begins. The permit must document this.
✔Indicate the appropriate dates.	The permit should indicate the dates authorized for hot work.
✔Identify the work.	The permit must identify the object on which hot work is to be performed.
✔Maintain the permit on file.	You must keep the permit on file until workers have completed the hot work operations.

WHERE TO GO FOR MORE INFORMATION

- *Standard for Fire Prevention in Use of Cutting and Welding Processes* (NFPA 518), National Fire Protection Association.
- *Standard for Welding*, Cutting and Brazing, 29 CFR 1910 Subpart Q.

7.13 CONTRACTORS (§68.87)

Exhibit 7-12 summarizes both yours and the contractors' responsibilities where contractors perform maintenance or repair, turnaround, major renovation, or specialty work on or adjacent to a covered process.

EXHIBIT 7-12
CONTRACTORS CHART

You must...	Your contractor must...
✔**Check safety performance.** When selecting a contractor, you must obtain and evaluate information regarding the safety performance of the contractor. ✔**Provide safety and hazards information.** You must inform the contractor of potential fire, explosion, or toxic release hazards; and of your emergency response activities as they relate to the contractor's work and the process. ✔**Ensure safe practices.** You must ensure that you have safe work practices to control the entrance, presence, and exit of contract employees in covered process areas. ✔**Verify that the contractor acts responsibly.** You must verify that the contractor is fulfilling its responsibilities.	✔**Ensure training for its employees.** The contractor must train its employees to ensure that they perform their jobs safely and in accordance with your source's safety procedures. ✔**Ensure its employees know process hazards and applicable emergency actions.** The contractor must assure that contract employees are aware of hazards and emergency procedures relating to the employees' work. ✔**Document training.** The contractor must prepare a record documenting and verifying adequate employee training. ✔**Ensure its employees are following your safety procedures.** ✔**Inform you of hazards.** The contractor must tell you of any unique hazards presented by its work or of any hazards it finds during performance.

EPA/OSHA DIFFERENCES

EPA has no authority to require that you maintain an occupational injury and illness log for contract employees. Be aware, however, that OSHA does have this authority, and that the PSM standard includes this requirement. (See 29 CFR 1910.119(h)(2)(vi)).

WHERE TO GO FOR MORE INFORMATION

- *Contractor and Client Relations to Assure Process Safety*, Center for Chemical Process Safety of the American Institute of Chemical Engineers 1996.
- *API/CMA Managers Guide to Implementing a Contractor Safety Program* (RP 2221), American Petroleum Institute.
- *Improving Owner and Contractor Safety Performance (RP 2220)*, American Petroleum Institute.

APPENDIX 7-A
PHA TECHNIQUES

This appendix provides descriptions of each of the PHA techniques listed in the OSHA PSM standard and in EPA's RMP rule at § 68.67. These descriptions include information on what each technique is, which types of processes they may be appropriate for, what their limitations are, and what level of effort is typically associated with each. This information is based on *Guidelines for Hazard Evaluation Procedures*, 2nd Ed., published by AIChE/CCPS. If you are interested in more detailed discussion and worked examples, you should refer to the AIChE/CCPS volume.

Neither the information below nor the full AIChE/CCPS volume will provide you with enough information to conduct a PHA. The rule requires that your PHA team include at least one person trained in the technique you use. Training in PHA techniques is available from a number of organizations. If you must conduct multiple PHAs, you are likely to need to update your PHAs frequently, or you have a complex process that will take several weeks to analyze, you may want to consider training one or more of your employees. If you have a single process that is unlikely to change more than once every five years, you may find it more cost-effective to hire a trained PHA leader.

DESCRIPTIONS OF TECHNIQUES

CHECKLISTS

Checklists are primarily used for processes that are covered by standards, codes, and industry practices — for example, storage tanks designed to ASME standards, ammonia handling covered by OSHA (29 CFR 1910.111), propane facilities subject to NFPA-58. Checklists are easy to use and can help familiarize new staff with the process equipment. AIChE/CCPS states that checklists are a highly cost-effective way to identify customarily recognized hazards. Checklists are dependent on the experience of the people who develop them; if the checklist is not complete, the analysis may not identify hazardous situations.

Checklists are created by taking the applicable standards and practices and using them to generate a list of questions that seek to identify any differences or deficiencies. If a checklist for a process does not exist, an experienced person must develop one based on standards, practices, and facility or equipment experience. A completed checklist usually provides "yes," "no," "not applicable," and "need more information" answers to each item. A checklist analysis involves touring the process area and comparing equipment to the list.

AIChE/CCPS estimates that for a small or simple system a checklist will take 2 to 4 hours to prepare, 4 to 8 hours to evaluate the process, and 4 to 8 hours to document the results. For larger or more complex processes, a checklist will take 1 to 3 days to prepare, 3 to 5 days to evaluate, and 2 to 4 days to document.

WHAT-IF

A What-If is a brainstorming approach in which a group of people familiar with the process ask questions about possible deviations or failures. These questions may be framed as What-If, as in "What if the pump fails?" or may be expressions of more general concern, as in "I worry about contamination during unloading." A scribe or recorder takes down all of the questions on flip charts or a computer. The questions are then divided into specific areas of investigation, usually related to consequences of interest. Each area is then addressed by one or more team members.

What-If analyses are intended to identify hazards, hazardous situations, or accident scenarios. The team of experienced people identifies accident scenarios, consequences, and existing safeguards, then suggest possible risk reduction alternatives. The method can be used to examine deviations from design, construction, modification, or operating intent. It requires a basic understanding of the process and an ability to combine possible deviations from design intent with outcomes. AIChE describes this as a powerful procedure if the staff are experienced; "otherwise, the results are likely to be incomplete."

A What-If usually reviews the entire process, from the introduction of the chemicals to the end. The analysis may focus on particular consequences of concern. AIChE provides the following example of a What-If question: "What if the raw material is the wrong concentration?" The team would then try to determine how the process would respond: "If the concentration of acid were doubled, the reaction could not be controlled and a rapid exotherm would result." The team might then recommend steps to prevent feeding wrong concentrations or to stop the feed if the reaction could not be controlled.

A What-If of simple systems can be done by one or two people; a more complex process requires a larger team and longer meetings. AIChE/CCPS estimates that for a small or simple system a What-If analysis will take 4 to 8 hours to prepare, 1 to 3 days to evaluate the process, and 1 to 2 days to document the results. For larger or more complex processes, a What-If will take 1 to 3 days to prepare, 4 to 7 days to evaluate, and 4 to 7 days to document.

WHAT-IF/CHECKLIST

A What-If/Checklist combines the creative, brainstorming aspects of the What-If with the systematic approach of the Checklist. The combination of techniques can compensate for the weaknesses of each. The What-If part of the process can help the team identify hazards and accident scenarios that are beyond the experience of the team members. The checklist provides a more detailed systematic approach that can fill in gaps in the brainstorming process. The technique is generally used to identify the most common hazards that exist in a process. AIChE states that it is often the first PHA conducted on a process, with subsequent analyses using more detailed approaches.

The purpose of a What-If/Checklist is to identify hazards and the general types of accidents that could occur, evaluate qualitatively the effects of the effects, and determine whether safeguards are adequate. Usually the What-If brainstorming precedes the use of the checklist, although the order can be reversed.

The technique usually is performed by a team experienced in the design, operation, and maintenance of the process. The number of people required depends on the complexity of the process. AIChE/CCPS estimates that for a small or simple system a What-If/Checklist analysis will take 6 to 12 hours to prepare, 6 to 12 hours to evaluate the process, and 4 to 8 hours to document the results. For larger or more complex processes, a What-If/Checklist will take 1 to 3 days to prepare, 4 to 7 days to evaluate, and 1 to 3 weeks to document.

HAZOP

The Hazard and Operability Analysis (HAZOP) was originally developed to identify both hazards and operability problems at chemical process plants, particularly for processes using technologies with which the plant was not familiar. The technique has been found to be useful for existing processes as well. A HAZOP requires an interdisciplinary team and an experienced team leader.

The purpose of a HAZOP is to review a process or operation systematically to identify whether process deviations could lead to undesirable consequences. AIChE states that the technique can be used for continuous or batch processes and can be adapted to evaluate written procedures. It can be used at any stage in the life of a process.

HAZOPs usually require a series of meetings in which, using process drawings, the team systematically evaluates the impact of deviations. The team leader uses a fixed set of guide words and applies them to process parameters at each point in the process. Guide words include "No," "More," "Less," "Part of," "As well as," Reverse," and "Other than." Process parameters considered include flow, pressure, temperature, level, composition, pH, frequency, and voltage. As the team applies the guide words to each process step, they record the deviation, with its causes, consequences, safeguards, and actions needed, or the need for more information to evaluate the deviation.

HAZOPs require more resources than simpler techniques. AIChE states that a simple process or a review with a narrow scope may be done by as few as three or four people, if they have the technical skills and experience. A large or complex process usually requires a team of five to seven people. AIChE/CCPS estimates that for a small or simple system a HAZOP analysis will take 8 to 12 hours to prepare, 1 to 3 days to evaluate the process, and 2 to 6 days to document the results. For larger or more complex processes, a HAZOP will take 2 to 4 days to prepare, 1 to 3 weeks to evaluate, and 2 to 6 weeks to document.

FAILURE MODE AND EFFECTS ANALYSIS (FMEA)

A Failure Mode and Effects Analysis (FMEA) evaluates the ways in which equipment fails and the system's response to the failure. The focus of the FMEA is on single equipment failures and system failures. An FMEA usually generates recommendations for increasing equipment reliability. FMEA does not examine human errors directly, but will consider the impact on equipment of human error. AIChE states that FMEA is "not efficient for identifying an exhaustive list of combinations of equipment failures that lead to accidents."

An FMEA produces a qualitative, systematic list of equipment, failure modes, and effects. The analysis can easily be updated for design or systems changes. The FMEA usually produces a table that, for each item of equipment, includes a description, a list of failure modes, the effects of each failure, safeguards that exist, and actions recommended to address the failure. For example, for pump operating normal, the failure modes would include fails to stop when required, stops when required to run, seal leaks or ruptures, and pump case leaks or ruptures. The effects would detail both the immediate effect and the impact on other equipment. Generally, when analyzing impacts, analysts assume that existing safeguards do not work, AIChE states that "more optimistic assumptions may be satisfactory as long as all equipment failure modes are analyzed on the same basis."

An FMEA requires an equipment list or P&ID, knowledge of the equipment, knowledge of the system, and responses to equipment failure. AIChE states that on average, an hour is sufficient to analyze two to four pieces of equipment. AIChE/CCPS estimates that for a small or simple system an

FMEA will take 2 to 6 hours to prepare, 1 to 3 days to evaluate the process, and 1 to 3 days to document the results. For larger or more complex processes, an FMEA will take 1 to 3 days to prepare, 1 to 3 weeks to evaluate, and 2 to 4 weeks to document.

FAULT TREE ANALYSIS (FTA)

A Fault Tree Analysis (FTA) is a deductive technique that focuses on a particular accident or main system failure and provides a method for determining causes of the event. The fault tree is a graphic that displays the combinations of equipment failures and human errors that can result in the accident. The FTA starts with the accident and identifies the immediate causes. Each immediate cause is examined to determine its causes until the basic causes of each are identified. AIChE states that the strength of FTA is its ability to identify combinations of basic equipment and human failures that can lead to an accident, allowing the analyst to focus preventive measures on significant basic causes.

AIChE states that FTA is well suited for analyses of highly redundant systems. For systems vulnerable to single failures that can lead to accidents, FMEA or HAZOP are better techniques to use. FTA is often used when another technique has identified an accident that requires more detailed analysis. The FTA looks at component failures (malfunctions that require that the component be repaired) and faults (malfunctions that will remedy themselves once the conditions change). Failures and faults are divided into three groups: primary failures and faults occur when the equipment is operating in the environment for which it was intended; secondary failures and faults occur when the system is operating outside of intended environment; and command faults and failures are malfunctions where the equipment performed as designed but the system that commanded it malfunctioned.

An FTA requires a detailed knowledge of how the plant or system works, detailed process drawings and procedures, and knowledge of component failure modes and effects. AIChE states that FTAs need well trained and experienced analysts. Although a single analyst can develop a fault tree, input and review from others is needed

AIChE/CCPS estimates that for a small or simple system an FTA will take 1 to 3 days to prepare, 3 to 6 days for model construction, 2 to 4 days to evaluate the process, and 3 to 5 days to document the results. For larger or more complex processes, an FTA will take 4 to 6 days to prepare, 2 to 3 weeks for model constructions, 1 to 4 weeks to evaluate, and 3 to 5 weeks to document.

Other Techniques

The rule allows you to use other techniques if they are functionally equivalent. The AIChE Guidelines includes descriptions of a number of other techniques including Preliminary Hazard Review, Cause-Consequence Analysis, Event Tree Analysis, and Human Reliability Analysis. You may also develop a hybrid technique that combines features of several techniques or apply more than one technique.

Selecting a Technique

Exhibit 7A-1 is adapted from the AIChE Guidelines and indicates which techniques are appropriate for particular phases in a process's design and operation.

EXHIBIT 7A-1

APPLICABILITY OF PHA TECHNIQUES

	Checklist	What-If	What-If-Checklist	HAZOP	FMEA	FTA
R&D		✓				
Design	✓	✓	✓			
Pilot Plant Operation	✓	✓	✓	✓	✓	✓
Detailed Engineering	✓	✓	✓	✓	✓	✓
Construction/Start-Up	✓	✓	✓			
Routine Operation	✓	✓	✓	✓	✓	✓
Modification	✓	✓	✓	✓	✓	✓
Incident Investigation		✓		✓	✓	✓
Decommissioning	✓	✓	✓			

Factors in Selecting a Technique

Type of process will affect your selection of a technique. AIChE states that most of the techniques can be used for any process, but some are better suited for certain processes than others. FMEA efficiently analyzes the hazards associated with computer and electronic systems; HAZOPs do not work as well with these. Processes or storage units designed to industry or government standards can be handled with checklists.

AIChE lists What-If, What-If/Checklist, and HAZOP as better able to handle batch processes than FTA or FMEA because the latter do not easily deal with the need to evaluate the time-dependent nature of batch operations.

Analysis of multiple failure situations is best handled by FTA. Single-failure techniques, such as HAZOP and FMEA, are not normally used to handle these although they can be extended to evaluate a few simple accident situations involving more than one event.

AIChE states that when a process has operated relatively free of accidents for a long time, the potential for high consequence events is low, and there have been few changes to invalidate the experience base, the less exhaustive techniques, such as a Checklist, can be used. When the opposite is true, the more rigorous techniques are more appropriate.

A final factor in selecting a technique is time required for various techniques. Exhibit 7A-2 summarizes AIChE's estimates of the time required for various steps. The full team is usually involved in the evaluation step; for some techniques, only the team leader and scribe are involved in the preparation and documentation steps.

EXHIBIT 7A-2

TIME AND STAFFING FOR PHA TECHNIQUES

	Checklist	What-If	What-If Checklist	HAZOP	FMEA	FTA
Simple/Small System						
# Staff	1-2	2-3	2-3	3-4	1-2	2-3
Preparation	2-4 h	4-8 h	6-12 h	8-12 h	2-6 h	1-3 d
Modeling						3-6 d
Evaluation	4-8 h	1-3 d	6-12 h	1-3 d	1-3 d	2-4 d
Documentation	4-8 h	1-2 d	4-8 h	2-6 d	1-3 d	3-5 d
Large/Complex Process						
# Staff	1-2	3-5	3-5	5-7	2-4	2-5
Preparation	1-3 d	1-3 d	1-3 d	2-4 d	1-3 d	4-6 d
Modeling						2-3 w
Evaluation	3-5 d	4-7 d	4-7 d	1-3 w	1-3 w	1-4 w
Documentation	2-4 d	4-7 d	1-3 w	2-6 w	2-4 w	3-5 w

h = hours d = days (8 hours) w = weeks (40 hours)

CHAPTER 8: EMERGENCY RESPONSE PROGRAM

If you have at least one Program 2 or Program 3 process at your facility, Part 68 requires you to implement an emergency response program if your employees will respond to some releases involving regulated substances. An emergency response program consists of an emergency response plan, emergency response equipment procedures, employee training, and procedures to ensure the program is up-to-date. (See the box on the next page for more information on What is Response?)

EPA recognizes that, in some cases (particularly for retailers and other small operations with few employees), it may not be appropriate for employees to conduct response operations for releases of regulated substances. For example, it would be inappropriate, and probably unsafe, for an ammonia retailer with only one full-time employee to expect that a tank fire could be handled without the help of the local fire department or other emergency responder. EPA does not intend to force such facilities to develop emergency response capabilities. At the same time, you are responsible for ensuring effective emergency response to any releases at your facility. If your local public responders are not capable of providing such response, you must take steps to ensure that effective response is available (e.g., by hiring response contractors).

8.1 NON-RESPONDING FACILITIES (§ 68.90(b))

EPA has adopted a policy for non-responding facilities similar to that adopted by OSHA in its Hazardous Waste Operations and Emergency Response (HAZWOPER) Standard (29 CFR 1910.120), which allows certain facilities to develop an emergency action plan to ensure employee safety, rather than a full-fledged emergency response plan. If your employees will not respond to accidental releases of regulated substances, you need not comply with the emergency response plan and program requirements provided you coordinate with local response agencies to ensure that they will be prepared to respond to an emergency at your facility. (You may want to briefly review the program design issues discussed in 8.2 prior to making this decision.) This will help to ensure that your community has a strategy for responding to and mitigating the threat posed by a release of a regulated substance from your facility. To do so, you must ensure that you have set up a way to notify emergency responders when there is need for a response. Coordination with local responders also entails the following:

- If you have a covered process with a regulated toxic substance, your facility must be included in the community emergency response plan prepared under EPCRA regarding a response to a potential release.

- If you have a covered process with a regulated flammable you must ensure that the local fire department is capable of responding to a potential release and aware of its responsibility to do so.

Although you do not need to report on these coordination activities in your risk management plan, to document your efforts you should keep a record of:

- The emergency contact (i.e., name or organization and number) that you will call for a toxic or flammable release, and
- The organization(s) that you worked with on response procedures.

What is "Response"?

For purposes of Part 68, "response" has the same meaning as that term has under OSHA's HAZWOPER Standard. OSHA defines emergency response as "a response effort by employees from outside the immediate release area or by other designated responders ... to an occurrence which results, or is likely to result, in an uncontrolled release of a hazardous substance." The key factor here is that responders are designated for such tasks by their employer. This definition *excludes* "responses to incidental releases of hazardous substances where the substance can be absorbed, neutralized, or otherwise controlled at the time of release by employees in the immediate release area, or by maintenance personnel" as well as "responses to releases of hazardous substances where there is no potential safety or health hazard (i.e., fire, explosion, or chemical exposure)." Thus, if you expect your employees to take action to end a small leak (e.g., shutting a valve) or clean up a spill that does not pose an immediate safety or health hazard, this action could be considered an incidental response and you would not need to develop an emergency response program if your employees are limited to such activities.

However, due to the nature of the regulated substances subject to EPA's rule, only the most minor incidents would be included in this exception. In general, most activities will qualify as a response due to the immediacy of the dispersion of a toxic plume or spread of a fire, the volatilization of a spill, and the threat to people on and off site. As a result, if you will have your employees involved in any substantial way in responding to releases, you will need to develop an emergency response program. Your emergency response procedures need only apply to "response" actions; other activities will be described in your maintenance and operating procedures.

The remainder of this chapter is applicable only to those facilities which will conduct at least some emergency response operations themselves. As noted above, you may want to review the next section before making a decision on whether your facility will take responsibility for conducting any response activities.

8.2 ELEMENTS OF AN EMERGENCY RESPONSE PROGRAM (§ 68.95)

If you will respond to releases of regulated substances with your own employees, your emergency response program must consist of the following elements:

- An emergency response plan (maintained at the facility) that includes:
  - Procedures for informing the public and emergency response agencies about releases,
  - Documentation of proper first aid and emergency medical treatment necessary to treat human exposures, and
  - Procedures and measures for emergency response.

What is a Local Emergency Planning Committee?

Local emergency planning committees (LEPCs) were formed under the Emergency Planning and Community Right-to-Know Act (EPCRA) of 1986. The committees are designed to serve as a community forum for issues relating to preparedness for emergencies involving releases of hazardous substances in their jurisdictions. They consist of representatives from local government (including law enforcement and firefighting), local industry, transportation groups, health and medical organizations, community groups, and the media. LEPCs:

- ✦ Collect information from facilities on hazardous substances that pose a risk to the community;
- ✦ Develop a contingency plan for the community based on this information; and
- ✦ Make information on hazardous substances available to the general public.

Contact the mayor's office or the county emergency management office for more information on your LEPC.

- ◆ Procedures for using, inspecting, testing, and maintaining your emergency response equipment;
- ◆ Training for all employees in relevant procedures; and
- ◆ Procedures to review and update, as appropriate, the emergency response plan to reflect changes at the facility and ensure that employees are informed of changes.

Your plan must be coordinated with the community plan developed under the Emergency Planning and Community Right-to-Know Act (EPCRA, also known as SARA Title III). In addition, at the request of local emergency planning or response officials, you must provide any information necessary for developing and implementing the community plan.

In keeping with the approach outlined in Chapter 6, EPA is not requiring facilities to keep specific records documenting training and maintenance activities related to emergency response programs. It is enough that facilities have on hand records sufficient to demonstrate compliance with the training and maintenance requirements. However, as noted above, facilities must maintain an on-site emergency response plan as well as emergency response equipment maintenance and program evaluation procedures.

Although EPA's required elements are essential to any emergency response program, they are not comprehensive guidelines for creating an adequate response capability. Rather than establish another set of federal requirements for an emergency response program, EPA has limited the provisions of its rule to those the CAA mandates. If you have a regulated substance on site, you are already subject to at least one emergency response rule: OSHA's emergency action plan requirements (29 CFR 1910.38). Under OSHA HAZWOPER, any facility that handles "hazardous

substances" (a broad term that includes all of the CAA regulated substances and thus applies to all facilities with covered processes) must comply with either 29 CFR 1910.38(a) or 1910.119(q). If you have a hazmat team, you are subject to the 29 CFR 1910.119(q) requirements. If you determine that the emergency response programs you have developed to comply with these other rules satisfy the elements listed at the beginning of this section, you will not have to do anything additional to comply with these elements. Additional guidance on making this decision is provided in section 8.5.

In addition, be careful not to confuse writing a set of emergency response procedures in a plan with developing an emergency response program. An emergency response plan is only one element of the integrated effort that makes up an emergency response program. Although the plan outlines the actions and equipment necessary to respond effectively, training, program evaluation, equipment maintenance, and coordination with local agencies must occur regularly if your plan is to be useful in an emergency: The goal of the program is to enable you to respond quickly and effectively to any emergency. The documents listed in Exhibit 8-1 may be helpful in developing specific elements of your emergency response program.

Exhibit 8-1
Federal Guidance on Emergency Planning and Response

Hazardous Materials Emergency Planning Guide (NRT-1), National Response Team, 2001. Although designed to assist communities in planning for hazmat incidents, this guide provides useful information on developing a response plan, including planning teams, plan review, and ongoing planning efforts.

Criteria for Review of Hazardous Materials Emergency Plans (NRT-1A), National Response Team, May 1988. This guide provides criteria for evaluating response plans.

Integrated Contingency Plan, National Response Team, (61 FR 28642, June 5, 1996). This provides guidance on how to consolidate multiple plans developed to comply with various federal regulations into a single, functional emergency response plan.

Emergency Response Guidebook, U.S. Department of Transportation, 2000. This guidebook was developed jointly by the US Department of Transportation, Transport Canada, and the Secretariat of Communications and Transportation of Mexico (SCT) for use by firefighters, police, and other emergency services personnel who may be the first to arrive at the scene of a transportation incident involving a hazardous material. It is primarily a guide to aid first responders in (1) quickly identifying the specific or generic classification of the material(s) involved in the incident, and (2) protecting themselves and the general public during this initial response phase of the incident. The ERG is updated every three to four years to accommodate new products and technology. The next version is scheduled for 2004. Copies are made available free of charge to public emergency responders through state emergency response coordinators.

Response Information Data Sheets (RIDS), US EPA and National Oceanic and Atmospheric Administration. Developed for use with the Computer-Aided Management of Emergency Operations (CAMEO) software, these documents outline the properties, hazards, and basic safety and response practices for thousands of hazardous chemicals.

Finally, remember that you are responsible for ensuring that any release from your processes can be handled effectively. If you plan to rely on local responders for some or all of the response, you must determine that those responders have both the equipment and training needed to do so. If they do not, you must take steps to meet any needs, either by developing your own response capabilities, developing mutual aid agreements with other facilities, hiring response contractors, or providing support to local responders so they can acquire equipment or training.

RELATIONSHIP TO HAZWOPER

If you choose to establish and maintain onsite emergency response capabilities, then you will be subject to the detailed provisions of the OSHA or EPA HAZWOPER Standard. HAZWOPER covers preparing an emergency response plan, employee training, medical monitoring of employees, recordkeeping, and other issues. Call

your state or federal district OSHA office for more information on complying with the HAZWOPER Standard. State and local governments in states without a delegated OSHA program are subject to HAZWOPER under EPA's 40 CFR part 311.

How Does the Emergency Response Program Apply?

The requirements for the emergency response program are intended to apply across all covered processes at a facility. Although certain elements of the program (e.g., how to use specific items of response equipment) may differ from one process to another, EPA does not intend or expect you to develop a separate emergency response program for each covered process. With this in mind, you should realize that your emergency response program will probably apply to your entire facility, although technically it need only apply to covered processes.

For example, a facility may have two storage tanks, one containing slightly more than a threshold quantity of a regulated substance and one with slightly less. The facility is likely to adopt the same response approach (e.g., procedures, equipment, and training) for releases whether or not the process is "covered." Similarly, a facility may have two adjacent flammables storage tanks, one containing a regulated substance above the threshold and the other containing another, unlisted flammable. The facility is likely to adopt the same approach for releases whether or not the process is "covered."

8.3 DEVELOPING AN EMERGENCY RESPONSE PROGRAM

The development of an emergency response program should be approached systematically. As described in section 8.2, all facilities complying with these emergency response program provisions will already be subject to OSHA HAZWOPER. As a result, you are likely to fall into one of two groups:

- You have already met several federal requirements for emergency planning and are interested in developing an integrated program to minimize duplication (section 8.4).

- You have a pre-existing emergency response program (perhaps based on an internal policy decision) and need to determine what additional activities you will need to conduct (section 8.5).

STEPS FOR GETTING STARTED

The following steps outline a systematic approach that can serve as the framework for the program development process in each of these cases. Following these initial steps will allow you to conduct the rest of the process more efficiently.

Form an emergency response program team. The team should consist of employees with varying degrees of emergency response responsibilities, as well as personnel with expertise from each functional area of your facility. You should consider including persons from the following departments or areas:

- Maintenance;
- Operations or line personnel;

- Upper and line management;
- Legal;
- Fire and hazmat response;
- Environmental, health, and safety affairs;
- Training;
- Security;
- EPCRA section 302 emergency coordinator (if one exists);
- Public relations; and
- Personnel.

The membership of the team will need to be more or less extensive depending on the scope of the emergency response program. A three-member team may be appropriate for a small facility with a couple of process operators cross-trained as fire responders, while a facility with its own hazmat team and environmental affairs department may need a dozen representatives.

Collect relevant facility documents. Members of the development team should collect and review all of the following:

- Existing emergency response plans and procedures;
- Submissions to the LEPC under EPCRA sections 302 and 303;
- Hazard evaluation and release modeling information;
- Hazard communication and emergency response training;
- Emergency drill and exercise programs;
- After-action reports and response critiques; and
- Mutual aid agreements.

Identify existing programs to coordinate efforts. The team should identify any related programs from the following sources:

- Corporate- and industry-sponsored safety, training, and planning efforts; and

- Federal, state, and local government safety, training, and planning efforts (see Exhibit 8-2).

Exhibit 8-2
Federal Emergency Planning Regulations

The following is a list of some of the federal emergency planning regulations:

- EPA's Oil Pollution Prevention Regulation (SPCC and Facility Response Plan Requirements) - 40 CFR part 112.7(d) and 112.20-.21;
- MM's Facility Response Plan Regulation - 30 CFR part 254;
- RSPA's Pipeline Response Plan Regulation - 49 CFR part 194;
- USCG's Facility Response Plan Regulation - 33 CFR part 154, Subpart F;
- EPA's Risk Management Programs Regulation - 40 CFR part 68;
- OSHA's Emergency Action Plan Regulation - 29 CFR 1910.38(a);
- OSHA's Process Safety Standard - 29 CFR 1910.119;
- OSHA's HAZWOPER Regulation - 29 CFR 1910.120;
- OSHA's Fire Brigade Regulation - 29 CFR 1910.156;
- EPA's Resource Conservation and Recovery Act Contingency Planning Requirements - 40 CFR part 264, Subpart D, 40 CFR part 265, Subpart D, and 40 CFR 279.52.
- EPA's Emergency Planning and Community Right-to-Know Act Requirements - 40 CFR part 355. (These planning requirements apply to communities, rather than facilities, but will be relevant when facilities are coordinating with local planning and response entities).
- EPA's Storm water Regulations - 40 CFR 122.26.

Facilities may also be subject to state and local planning requirements.

Determine the status of each required program element. Using the information collected, you should assess whether each required program element (see section 8.2) is:

- In place and sufficient to meet the requirements of part 68;
- In place, but not sufficient to meet the requirements of Part 68; or
- Not in place.

This examination will shape the nature of your efforts to complete the emergency response program required under the risk management program. For example, if you are already in compliance with OSHA's HAZWOPER Standard, you have probably satisfied most, if not all, of the requirements for an emergency response program. Section 8.6 explains the intent of each of EPA's requirements to help you determine whether you are already in compliance.

Take additional actions as necessary.

TAILORING YOUR PROGRAM TO YOUR HAZARDS

If your processes and chemicals pose a variety of hazards, it may be necessary to tailor some elements of your emergency response program to these specific hazards. Unless each part of your program element is appropriate to the release scenarios that may occur, your emergency response program cannot be fully effective. Your program should include core elements that are appropriate to most of the scenarios, supplemented with more specific response information for individual scenarios. This distinction should be reflected in your emergency response plan, which should explain when to access the general and specific response information. To do this, you will need to consider the following four steps:

- Identify and characterize the hazards for each covered process. The process hazards analysis (see Chapter 7) or hazard review (see Chapter 6), and offsite consequence analysis (see Chapter 4) should provide this information.

- For each program element, compare the activities involved in responding to each type of accident scenario and decide if they are different enough to require separate approaches. For example, response equipment and training will likely be different for releases of toxic versus flammable gases.

- For those program elements that may be chemical- or process-specific, identify what and how systems and procedures need to be modified. For example, if existing mitigation systems are inadequate for responding to certain types of releases, you will need to consider what additional types of equipment are needed.

- Consider possible causes of emergencies in developing your emergency response program. You should consider both the hazards at your facility and in the surrounding environment. In making this determination, you should consider your susceptibility to:

  - Fires, spills, and vapor releases;
  - Floods, temperature extremes, tornadoes, earthquakes, and hurricanes;
  - Loss of utilities, including power failures; and
  - Train derailments, bomb threats, and other man-made disasters.

8.4 INTEGRATION OF EXISTING PROGRAMS

A number of other federal statutes and regulations require emergency response planning (see Exhibit 8-2). On June 5, 1996, the National Response Team (NRT), a multi-agency group chaired by EPA, published the Integrated Contingency Plan Guidance in the Federal Register (61 FR 28642). This guidance is intended to be used by facilities to prepare emergency response plans for responding to releases of oil and hazardous substances. The guidance provides a mechanism for consolidating multiple plans that you prepared to comply with various regulations into a single, functional emergency response plan or integrated contingency plan (ICP).

The ICP guidance does not change existing regulatory requirements; rather, it provides a format for organizing and presenting material currently required by regulations. Individual regulations are often more detailed than the ICP guidance. To ensure full compliance, you will still need to read and comply with all of the federal regulations that apply. The guidance contains a series of matrices designed to assist you in consolidating various plans while documenting compliance with these federal requirements.

The NRT and the agencies responsible for reviewing and approving plans to which the ICP option applies have agreed that integrated response plans prepared according to the guidance will be acceptable and the federally preferred method of response planning. The NRT anticipates that future development of all federal regulations addressing emergency response planning will incorporate use of the ICP guidance.

As shown in Exhibit 8-3, the ICP format is organized into three main sections: an introductory section, a core plan, and a series of supporting annexes. The notice published in the Federal Register explains the intended structure of the ICP and provides detailed annotation. EPA's EPCRA/RCRA/Superfund Hotline can supply you with a copy and answer general questions about the guidance; for further information and guidance on complying with specific regulations, you should contact the appropriate federal agencies.

AN APPROACH TO INTEGRATION

Like many other facilities, you may have opted to develop and maintain separate documents and procedures for each federal emergency planning requirement. However, meeting the Clean Air Act emergency response requirements provides you with the opportunity to integrate several existing programs. Integrating the various emergency response efforts you conduct (both those mandated by management and by government) will increase the usefulness of your emergency preparedness activities and decrease the burden associated with maintaining multiple programs. Integration will improve your chances to respond effectively to a release by streamlining your training and eliminating overlaps and conflicts in the roles and responsibilities of your employees under different programs. However, it is important to note that, although you are encouraged to integrate your emergency response efforts, it is not a requirement of the Clean Air Act.

If you have multiple emergency response programs, you should consider integrating them into a single program with procedures for responding to your most likely release scenarios. The ICP Guidance discussed above provides comparison matrices for a number of federal programs that will help you accomplish the following:

- Distinguish the individual regulatory provisions with which you must comply, and
- Identify where an integrated effort can meet the requirements of two or more regulations.

The requirements of various emergency response programs may be similar, but the subtle differences between requirements will likely determine the degree to which

Exhibit 8-3
Integrated Contingency Plan Outline

Section I - Plan Introduction Elements

1. Purpose and Scope of Plan Coverage
2. Table of Contents
3. Current Revision Date
4. General Facility Identification Information

a. Facility name
b. Owner/operator/agent (include physical and mailing address and phone number)
c. Physical address of the facility (include county/parish/borough, latitude/longitude, and directions)
d. Mailing address of the facility (correspondence contact)
e. Other identifying information (e.g., ID numbers, SIC Code, oil storage start-up date)
f. Key contact(s) for plan development and maintenance
g. Phone number for key contact(s)
h. Facility phone number
I. Facility fax number

Section II - Core Plan Elements

1. Discovery
2. Initial Response

a. Procedures for internal and external notifications (i.e., contact, organization name, and phone number of facility emergency response coordinator, facility response team personnel, federal, state, and local officials)
b. Establishment of a response management system
c. Procedures for preliminary assessment of the situation, including an identification of incident type, hazards involved, magnitude of the problem, and resources threatened
d. Procedures for establishment of objectives and priorities for response to the specific incident, including:
   (1) Immediate goals/tactical planning (e.g., protection of workers and public as priorities)
   (2) Mitigating actions (e.g., discharge/release control, containment, and recovery, as appropriate)
   (3) Identification of resources required for response
e. Procedures for implementation of tactical plan
f. Procedure for mobilization of resources

3. Sustained Actions
4. Termination and Follow-Up Actions

Section III - Annexes

Annex 1. Facility and Locality Information

a. Facility maps
b. Facility drawings
c. Facility description/layout, including identification of facility hazards and vulnerable resources and populations on and off the facility which may be impacted by an incident

Exhibit 8-3 (continued)

Annex 2. Notification
a. Internal notifications
b. Community notifications
c. Federal and state agency notifications
Annex 3. Response Management System
a. General
b. Command
c. Operations
d. Planning
e. Logistics
f. Finance/procurement/administration
Annex 4. Incident Documentation
a. Post accident investigation
b. Incident history
Annex 5. Training and Exercises/Drills
Annex 6. Response Critique and Plan Review and Modification Process
Annex 7. Prevention
Annex 8. Regulatory Compliance and Cross-Reference Matrices

integration is a feasible and beneficial undertaking (see Exhibit 8-4). To help you identify the relevant rules and regulations, the ICP Guidance provides section-by-section regulatory citations for each emergency response program element for each of the regulatory programs listed in Exhibit 8-2.

8.5 HAVE I MET PART 68 REQUIREMENTS?

EPA believes that the creation of multiple response plans to meet slightly different federal or state standards is counterproductive, diverting resources that could be used to develop better response capabilities. Therefore, as part of the overall effort to reduce the imposition of potentially duplicative or redundant federal requirements, EPA has limited its requirements for the emergency response program to the general provisions mandated by Congress, as described in Section 8.2.

As a result, EPA believes that facilities subject to other federal emergency planning requirements may have already met the requirements of these regulations. For example, plans developed to comply with other EPA contingency planning requirements and the OSHA HAZWOPER rule (29 CFR 1910.120) will likely meet the requirements for the emergency response plan (and most of the requirements for the emergency response program). The following discussion presents some general guidance on what actions you need to take for each of the required elements.

EMERGENCY RESPONSE PLAN

If you already have a written plan to comply with another planning regulation, you do not need to write another plan, but only add to it as necessary to cover the elements listed below.

Exhibit 8-4
Sample Integration Effort

Written site evacuation procedures are required by several emergency planning regulations. In keeping with the spirit of the ICP Guidance, rather than preparing multiple sets of evacuation procedures (and possibly introducing dangerous errors as components are revised and updated), you may want to compile a single set of procedures that includes the specific elements mandated by all of the regulations. For example, If you have one or more adjacent operating areas that evacuate to the same location(s), this approach will be very effective. On the other hand, if you have widely separated operating areas with different evacuation routes and assembly points, integration will be less useful.

Area	Signal	Escape Route	Assembly Point	Supervisor
Shipping Room	Horn	Blue	Front Gate	Shipping Supervisor
Control Room	Horn	Green	Parking Lot	Lead Operator
Tank Farm	Radio	Red	Side Gate	Inspector

Keep in mind: At a minimum, your plan must describe:

- Your procedures for informing the public and offsite emergency response agencies of a release. This must include the groups and individuals that will be contacted and why, the means by which they will be contacted, the time frame for notification, and the information that will be provided.

- The proper first aid and emergency medical treatment for employees, first responders, and members of the public who may have been exposed to a release of a regulated substance. This must include standard safety precautions for victims (e.g., apply water to exposed skin immediately) as well as more detailed information for medical professionals. You must also indicate who is likely to be responsible for providing the appropriate treatment: an employee, an employee with specialized training, or a medical professional.

- Your procedures for emergency response in the event of a release of a regulated substance. This must include descriptions of the actions to be taken by employees and other individuals on-site over the entire course of the release event:

  - Activation of alarm systems and interpretation of signals;
  - Safe evacuation, assembly, and return;
  - Selection of response strategies and incident command structure;
  - Use of response equipment and other release mitigation activities; and

- Post-release equipment and personnel cleanup and decontamination.

PLANNING COORDINATION

If you have already coordinated with local response agencies on how to respond to potential releases of regulated substances and you have ensured an effective response, you do not need to take any further action.

One of the most important issues in an emergency response program is deciding which response actions will be assigned to employees and which will be handled by offsite personnel. As a result, talking to public response organizations will be critical when you develop your emergency response procedures. Although EPA is not requiring you to be able to respond to a release alone, you should not simply assume that local responders will be able to manage an emergency. You must work with them to determine what they can do, and then expand your own abilities or establish mutual aid agreements or contracts to handle those situations that will be left to you.

Keep in mind: Your coordination must involve planning for releases of regulated substances from all covered processes and must cover:

- What offsite response assistance you will require for potential release scenarios, including fire-fighting, security, and notification of the public;
- How you will request offsite response assistance; and
- Who will be in charge of the response operation and how will authority be delegated down the internal and offsite chain of command.

Coordination equivalent to that required for planning for extremely hazardous substances under EPCRA sections 302-303 will be considered sufficient to meet this requirement. A more detailed discussion of this element is provided in 8.6.

EMERGENCY EQUIPMENT

If you already have written procedures for using and maintaining your emergency response equipment, you do not need to write new procedures.

Keep in mind: Your procedures must apply to any emergency equipment relevant to a response involving a covered process, including all detection and monitoring equipment, alarms and communications systems, and personal protective equipment not used as part of normal operations (and thus not subject to the prevention program requirements related to operating procedures and maintenance). The procedures must describe:

- How and when to use the equipment properly;
- How and when the equipment should receive routine maintenance; and

- How and when the equipment should be inspected and tested for readiness.

Written procedures comparable to those necessary for process-related equipment under the OSHA PSM Standard and EPA's Program 2 and 3 Prevention Programs will be considered sufficient to meet this requirement.

EMPLOYEE TRAINING

If you already train your employees in how to respond to (or evacuate from) releases of regulated substances, then you do not need a new training program.

Keep in mind: Your training must address the actions to take in response to releases of regulated substances from all covered processes. The training should be based directly on the procedures that you have included in your emergency response plan and must be given to all employees and contractors on site. Individuals should receive training appropriate to their responsibilities:

- If they will only need to evacuate, then their training should cover when and how to evacuate their location.
- If they may need to activate an alarm system in response to a release event, then their training should cover when and how to use the alarm system.
- If they will serve on an emergency response team, then their training should cover where emergency equipment is deployed, how to use emergency equipment and how the incident command system works.

Emergency response training conducted in compliance with the OSHA HAZWOPER Standard and 29 CFR 1910.38 will be considered sufficient to meet this requirement.

RESPONSE PLAN EVALUATION

If you already have a formal practice for regular review and updates of your plan based on changes at the facility, you do not need to develop additional procedures.

Keep in mind: You must also identify the types of changes to the facility that would cause the plan to be updated (e.g., a new covered process) and include a method of communicating any changes to the plan to your employees (e.g., through training). You may want to set up a regular schedule on which you review your entire emergency response plan and identify any special conditions (e.g., a drill or exercise) that could result in an interim review.

8.6 COORDINATION WITH LOCAL EMERGENCY PLANNING ENTITIES (§ 68.95(c))

Once you determine that you have at least one covered process, you should open communications with local emergency planning and response officials, including your local emergency planning committee (LEPC) if one exists. Because your LEPC consists of representatives from many local emergency planning and response agencies, it is likely to be the best source of information on the critical emergency response issues in your community. However, in some cases, there may not be an

active LEPC in your community. If so, or if your state has not designated your community as an emergency planning district under EPCRA, you will likely need to contact local agencies individually to determine which entities (e.g., fire department, emergency management agency, police department, civil defense office, public health agency) have jurisdiction for your facility.

KEY COORDINATION ISSUES

If you have any of the toxic regulated substances above the threshold quantity, you should have already designated an emergency coordinator to work with the LEPC on chemical emergency preparedness issues (a requirement for certain facilities regulated under EPCRA). If you have not (or if your facility has only regulated flammable substances), you may want to do so at this time. The emergency coordinator should be the individual most familiar with your emergency response program (e.g., the person designated as having overall responsibility for this program in your management system — see Chapter 5).

Involvement in the activities of your LEPC can have a dramatically positive effect on your emergency response program, as well as on your relationship with the surrounding community. Your LEPC can provide technical assistance and guidance on a number of topics, such as conducting response training and exercises, developing mutual aid agreements, and evaluating public alert systems. The coordination process will help both the community and the facility prepare for an emergency, reducing expenditures of time and money, as well as helping eliminate redundant efforts.

You should consider providing the LEPC with draft versions of any emergency response program elements related to local emergency planning efforts. This submission can initiate a dialogue with the community on potential program improvements and lead to coordinated training and exercise efforts. In return, your LEPC can support your emergency response program by providing information from its own emergency planning efforts, including:

- Data on wind direction and weather conditions, or access to local meteorological data, to help you make decisions related to the evacuation of employees and public alert notification;
- Lists of emergency response training programs available in the area for training police, medical, and fire department personnel, to help you identify what training is already available;
- Schedules of emergency exercises designed to test the community response plan to spur coordinated community-facility exercises;
- Lists of emergency response resources available from both public and private sources to help you determine whether and how a mutual aid agreement could support your program; and

- Details on incident command structure, emergency points of contact, availability of emergency medical services, and public alert and notification systems.

Upon completion of your emergency response plan, you should coordinate with the LEPC, local response organizations, local hospitals, and other response organizations (e.g., state hazmat team) and offer them a copy of the plan. In some instances, only a portion of the plan may be of use to individuals or organizations; in such cases, you should consider making only that portion of the plan available. For instance, it may be appropriate to send a hospital only the sections of your plan that address emergency medical procedures and decontamination.

You may also want to provide your LEPC and local response entities with a description of your emergency response program elements, as well as any important subsequent amendments or updates, to ensure that the community is aware of the scope of your facility response efforts prior to an emergency. Although the summary of your emergency response program will be publicly available as part of your RMP, this information may not be as up-to-date or as comprehensive. Remember, the LEPC has been given the authority under EPCRA and Clean Air Act regulations to request any information necessary for preparing the community response plan.

Planning for Flammable Substances

In the case of regulated flammable substances, the fire department with jurisdiction over your facility may already be conducting fire prevention inspections and pre-planning activities under its own authority. Your participation in these efforts (as requested) will allow local responders to gather the information they need and prepare for an emergency. If there is no local fire department, or if there is only a volunteer fire department in your area, you may need to contact other local response or planning officials (e.g., police) to determine how you can work with the community.

CHAPTER 9: RISK MANAGEMENT PLAN (PART 68, SUBPART G)

You must submit one risk management plan (RMP) to EPA for all of your covered processes (§ 68.150). EPA has developed an electronic submission program (RMP*Submit™) for your use. If you cannot submit electronically, you may submit your RMP on paper. In either case, your RMP is due no later than the latest of the following dates:

- June 21, 1999, if your facility had a regulated substance above the threshold quantity in a process by that date;
- The date on which your facility first has a regulated substance above the threshold quantity in a process; or
- Three years after the date on which a regulated substance is first listed by EPA, if your facility has that regulated substance above the threshold quantity.

EPA's software for submitting RMPs, RMP*Submit™, discussed below, is available free from the EPCRA hotline (on CD-ROM) or can be downloaded from http://yosemite.epa.gov/oswer/ceppoweb.nsf/content/RMPsubmission.htm

As discussed further below, you must fully update all nine sections and resubmit your RMP every five years or when certain types of changes take place, whichever occurs first (see section 68.190). For facilities that submitted RMPs by the original deadline of June 21, 1999, an updated RMP is due by June 21, 2004, unless the RMP was updated previously due to changes specified by the regulation. Also, EPA revised the RMP reporting requirements in April 2004 to include a few new data elements (e.g., emergency contact email address, if any), and more timely correction of certain data elements (e.g., emergency contact information). All RMPs must include the new data elements by June 21, 2004. Most facilities can include the new data elements in their RMP updates also due by June 21, 2004. Facilities that are not required to update their RMPs by June 21, 2004 must still add the new data elements to the RMPs on file with EPA by that date.

The Agency is making available an Internet-based system for easily including new information in, and making corrections to, an existing RMP. Facilities that submit RMPs and later change their process(es) in ways that make them no longer subject to part 68 (e.g., switching to unregulated substances or reducing inventories of regulated substances to less than threshold quantities) must de-register their RMP within six months of making the change.

Finally, facilities submitting changes to their RMPs must identify the type of change being submitted and the reason for the change (e.g., submission of an updated RMP as a result of a process change at the plant). This information will help implementing agencies understand the nature of the RMP submission being made.

9.1 ELEMENTS OF THE RMP

The length and content of your RMP will vary depending on the number and program level of the covered processes at your facility. See Chapter 2 for detailed

guidance on how to determine the program levels of each of the covered processes at your facility.

Any facility with one or more covered processes must include in its RMP:

- An executive summary (§ 68.155);
- The registration for the facility (§ 68.160);
- The certification statement (§ 68.185);
- A worst-case scenario analysis for each Program 1 process; at least one worst-case scenario analysis to cover all Program 2 and 3 processes involving regulated toxic substances; at least one worst-case scenario analysis to cover all Program 2 and 3 processes involving regulated flammables (§ 68.165(a));
- The five-year accident history for each process (§ 68.168); and
- Information concerning emergency response at the facility (§ 68.180).

Any facility with at least one covered process in Program 2 or 3 must also include:

- At least one alternative release scenario analysis for each regulated toxic substance in Program 2 or 3 processes and at least one alternative release scenario analysis to cover all regulated flammables in Program 2 or 3 processes (§ 68.165(b));
- A summary of the prevention program for each Program 2 process (§ 68.170); and
- A summary of the prevention program for each Program 3 process (§ 68. 175).

Subpart G of part 68 (see Appendix A) describes the data required for each of the elements. The RMP form itself – in both electronic (RMP*Submit™) and paper formats – and its accompanying user's manual contain more detailed instructions. The software for the electronic version is designed to limit the number of text entries. For example, the rule requires you to report on the major hazards identified during a PHA or hazard review and on public receptors potentially affected by worst-case and alternative release scenarios. RMP*Submit™ provides a list of options for you to check for these elements. Except for the executive summary, the RMP consists primarily of yes/no answers, numerical information (e.g., dates, quantities, distances), and a few text answers (e.g., names, addresses, chemical identity). Where possible, RMP*Submit™ provides "pick lists" to help you complete the form. For example, RMP*Submit™ provides a list of regulated substances and automatically fills in the CAS numbers when you select a substance. The RMP*Submit™ User's Manual explains each data element and helps you understand what acceptable data are for each. Both the RMP*Submit™ software and

RMP*Submit™ User's Manual are available free of charge on EPA's web site at http://yosemite.epa.gov/oswer/ceppoweb.nsf/content/RMPsubmission.htm.

9.2 RMP SUBMISSION

ELECTRONIC SUBMISSION

EPA has made RMP*Submit™ available to complete and file your RMP. RMP*Submit™ does the following:

- Provides a user-friendly, PC-based RMP Submission System available on CD-ROM and via the Internet (http://yosemite.epa.gov/oswer/ceppoweb.nsf/content/RMPsubmission.htm);
- Uses a standards-based, open systems architecture so private companies can create compatible software; and
- Performs data quality checks, accepts limited graphics, and provides on-line help including defining data elements and providing instructions.

The software runs on Windows 98 and above. There is no DOS or MAC version.

HARD COPY SUBMISSION

If you are unable to submit electronically for any reason, just fill out the Paper Submission form available in the RMP*Submit™ User's Manual and send it in with your RMP. See the RMP*Submit™ User's Manual for more information on the Paper Submission form. The forms are also available from http://yosemite.epa.gov/oswer/CeppoWeb.nsf/vwResourcesByFilename/a-form.pdf/$File/a-form.pdf and from the EPCRA Call Center (see Appendix C). If you submit on paper, you will need to use the official form. If you do not use the official form, your RMP can not be processed.

IMPORTANT REMINDERS

Do not forget your certification letter. A certification letter is required for all RMP submissions. See chapter 3, Section F of the RMP*Submit User's Manual for more information on the certification letter.

Protect your diskette against damage. Mail your diskette in a cardboard diskette mailer or put some padding around it.

Make sure your Executive Summary is in ASCII DOS Text format and that it is actually on the diskette submitted. If the Executive Summary is more than 32 KB, you need to save it as a text file and identify the name of the text file in RMP*Submit. If you use a word processing program to develop the summary, you must save it as ASCII text.

WHERE DO I SEND MY RMP?

By mail, send your RMP to:
Risk Management Plan (RMP) Reporting Center
P.O. Box 1515
Lanham-Seabrook, Maryland 20703-1515

For courier and FEDEX packages, the address is:
Risk Management Plan (RMP) Reporting Center
c/o CSC
Suite 300
8400 Corporate Drive
New Carrollton, Maryland 20785

9.3 ISSUES PERTAINING TO SUBMISSIONS OF AND ACCESS TO CLASSIFIED, CONFIDENTIAL BUSINESS INFORMATION (CBI), AND TRADE SECRETS

WHAT SHOULD I DO ABOUT CLASSIFIED INFORMATION?

Only Federal agencies and their contractors at Federal facilities may make claims of classified information. If you have such a claim, EPA urges you not to submit the information you claim as classified as part of your RMP. If any classified information is critical to the clarity and completeness of any part of the RMP, you should submit that information separately, on paper, in an annex to the RMP. Any annex marked as classified will be reviewed only by Federal and state representatives who have received security clearances and are thereby authorized to review such information.

WHAT SHOULD I DO ABOUT CONFIDENTIAL BUSINESS INFORMATION (CBI)?

Under CAA section 114(c), 40 CFR part 2 and part 68, you may claim some information included in your RMP as CBI if you are able to show that the information meets the substantive criteria set forth in 40 CFR 2.301. These criteria generally require that the data be commercial or financial in nature, that they not be available to the public through other means, that you take appropriate steps to prevent disclosure, and that disclosure of the data would be likely to cause substantial harm to your competitive position. Review of any CBI claims will be handled as provided for in 40 CFR part 2. However, part 68 provides that certain RMP data elements are not claimable as CBI because they do not convey any business-sensitive information. EPA has developed specific procedures for submission of CBI claims for RMPs. See §§ 68.151 and 68.152 for details on what data may be claimed as CBI and how to assert such claims. It is worth noting that few CBI claims have been asserted since RMPs were first submitted in 1999.

In general the part 68 procedures provide that:

- Owners or operators must substantiate CBI claims at the time they make the claim by providing documentation demonstrating that the claim meets the criteria set forth in 40 CFR 2.301

- Substantiating information may be claimed confidential by marking it as CBI. Information that is not so marked will be treated as public and may be disclosed without notice to the submitter. If substantiating information is claimed confidential, the owner or operator must provide a sanitized and unsanitized version of the substantiating information.

- The owner, operator, or senior official with management responsibility of the stationary source must sign a certification that the signer has personally examined the information submitted and that, based on inquiry of the persons who compiled the information, the information is true, accurate, and complete, and that those portions of the substantiation claimed as confidential would, if disclosed, reveal trade secrets or other confidential business information.

9.4 RMP UPDATES, CORRECTIONS AND DE-REGISTRATIONS (§ 68.190)

Whether and when you are required to fully update and resubmit, correct, or de-register your RMP is based on what changes occur at your facility. Please refer to the Exhibit 9-1 and note that you are required to take action with regard to your RMP on the earliest of the dates that apply to your facility: In some cases, changes at the facility may require only a partial revision of the RMP or a simple correction of administrative or emergency contact information. Exhibit 9-1 also covers these situations.

CAN I FILE PREDICTIVELY?

Predictive filing is an option that allows you to submit an RMP that includes regulated substances that may not be held at the facility at the time of submission. This option is intended to assist facilities such as chemical warehouses, chemical distributors, and batch processors whose operations involve highly variable types and quantities of regulated substances, but who are able to forecast their inventory with some degree of accuracy. Under § 68.190, you are required to update and re-submit your RMP no later than the date on which a new regulated substance is first present in a covered process above a threshold quantity. By using predictive filing, you will not be required to update and re-submit your RMP every time you receive a new regulated substance if that substance was included in your latest RMP submission (as long as you receive it in a quantity that does not trigger a revised offsite consequence analysis as provided in § 68.36).

If you use predictive filing, you must implement your Risk Management Program and prepare your RMP exactly as you would if you actually held all of the substances included in the RMP. This means that you must meet all rule requirements for each regulated substance for which you file, whether or not that substance is actually held on site at the time you submit your RMP. Depending on the substances for which you file, this may require you to perform additional worst-case and alternative-case scenarios and to implement additional prevention program elements. If you use this option, you must still update and resubmit your RMP if you receive a regulated substance that was not included in your latest RMP. You must also continue to comply with the other update requirements stated in § 68.190.

EXHIBIT 9-1
RMP UPDATES, CORRECTIONS AND DE-REGISTRATIONS

Change That Occurs	Date by Which You Must Update, Correct or De-register your RMP
No changes occur	At least once every 5 years from its initial submission or most recent update
A newly regulated substance is first listed by EPA	Within 3 years of the date EPA listed the newly regulated substance if your facility has more than a threshold quantity of that substance in a process
A regulated substance first becomes present above its threshold quantity in: -- a process already covered; or -- a new process	On or before the date the quantity of the regulated substance exceeds the threshold in the process
A change occurs at your facility that requires a revised PHA or hazard review	Within 6 months of the change
A change occurs at or near your facility that requires a revised offsite consequence analysis (e.g., you increase your inventory of a regulated substance such that it increases the distance to the endpoint by a factor of 2 or more, or a new public receptor is constructed near your facility)	Within 6 months of the change
A change occurs that alters the Program level that previously applied to any covered process	Within 6 months of the change
An accidental release meeting the reporting criteria of § 68.42 occurs at your facility	Add to and correct accident history information and incident investigation data elements within 6 months of the date of the accident (revising other RMP sections is not required unless facility changes resulting from an accident trigger a full update)
Facility emergency contact information changes	Correct the emergency contact information in RMP within one month of the change (revising other RMP elements not required). This correction can be done via the Internet
Minor administrative change (i.e., correct a clerical error or supply additional information)	Correct the information as soon as practicable(revising other RMP elements is not required). This correction can be done via the Internet
A change occurs that makes the facility no longer subject to the requirement to submit an RMP	Submit a de-registration letter indicating that the RMP is no longer required to EPA within 6 months of the change

HOW DO I DE-REGISTER?

If your facility is no longer covered by this rule, you must submit a letter to the RMP Reporting Center within six months indicating that your stationary source is no longer covered.

RECURRING ACCIDENT PREVENTION PROGRAM REQUIREMENTS

Don't forget that in addition to updating your RMP submission, the Risk Management Program regulation contains various recurring implementation requirements for covered facilities' accident prevention and emergency response programs. You should ensure that you are up to date with implementation of these requirements also, and reflect the most recent information for your prevention and emergency response programs in your RMP update. The following is a list of some key elements in your RMP that you should review, as well as recurring prevention and emergency response program implementation requirements that you should make sure are completed:

- Review and update your offsite consequence analyses (OCA) at least once every 5 years (40 CFR 68.36).

  For your worst-case and alternate-case scenarios, you should review your documentation to determine that the parameters and assumptions used in the analyses are still appropriate. Such assumptions include the use of any administrative controls or passive mitigation, the estimated quantity released, the release rate, and the duration of release. The results of this review should be documented and maintained as part of your RMP records. Any changes to the scenarios resulting from this review, including changes in the distance-to-endpoint, should be reported in your updated submission.

  You should review the data used to identify and estimate population and environmental receptors to be sure that it is current. For example, new construction in your area may have resulted in public receptors closer to your facility than was the case when you first conducted the OCA for your facility. Also, you may have used Census data to estimate the residential population within the distance to endpoint. If so, you should update this estimate based on the latest Census data. The 2000 Census data can be found in publications of the US Census Bureau. These publications, including *County and City Data Book: 2000*, are available on the Census Bureau website (www.census.gov) and in public libraries.

- For Program 2, review and update your hazard review at least once every 5 years (40 CFR 68.50).

  The review and any updates of the hazard review, as well as resolution of any problems identified, must be documented. You should report the date of your most recent hazard review update, and the completion date for any changes resulting from the hazard review, in your RMP update.

- For Program 3, update and revalidate your process hazard analysis (PHA) at least once every 5 years (40 CFR 68.67).

  This revalidation must be conducted by a team with expertise in engineering and process operations. The team must include at least one employee who has experience and knowledge specific to the process being evaluated. Also, one member of the team must be knowledgeable in the specific PHA methodology being used. The revalidation is intended to assure that the PHA is consistent with the current process.

  To revalidate your PHA, you should evaluate your current process hazard analysis for accuracy and completeness. This evaluation should include checking that all modifications to your process are reflected in the PHA ; evaluating the process safety information to ensure that it is complete, current, and accurate; verifying that operating procedures are adequate, up-to-date, and implemented; documenting that PHA recommendations have been incorporated into equipment design, process conditions, mechanical integrity, operating procedures, training, and emergency response; verifying that recommendations have been implemented; reviewing incident investigation reports. Updated and revalidated PHAs completed to comply with OSHA's Process Safety Management Standard (29 CFR 1910.119(e)) are acceptable to meet this requirement as long as they also considered hazards that could result in off-site consequences.

  The revalidation and any updates of the process hazard analyses, as well as resolution of any recommendations, must be documented. This documentation must be retained as part of your RMP records for the life of the process. You should report the date of your most recent process hazard update, and the completion date for any changes resulting from the process hazard update, in your RMP update.

- The Risk Management Program requires several aspects of your prevention program to be periodically implemented or reviewed. The most recent dates for these activities should be reported in your RMP update:

  Training in operating procedures (40 CFR 68.54 and 68.71): For both Program 2 and 3, you are required to provide refresher training at least every three years, and more often if necessary.

  Compliance audits (40 CFR 68.58 and 68.79): For both Program 2 and 3, you are required to audit your procedures and practices for compliance with the Risk Management Program regulations at least every three years to verify their adequacy and implementation.

  Maintenance/Mechanical Integrity (40 CFR 68.56 and 68.73): For both Program 2 and 3, you are required to inspect and test your process equipment according to the schedule that you have established based on good engineering practices.

Operating procedures (40 CFR 68.89): For Program 3 only, you are required to certify annually that your operating procedures are current and accurate.

Management of change (40 CFR 68.75): For Program 3 only, you are required to update your process safety information and your procedures and practices for a covered process in the event of any change to the process chemicals, technology, equipment, or procedures.

- Correction of your five-year accident history.

  You must submit a correction that revises your five-year accident history within six months of an accidental release of a regulated substance from a covered process that resulted in deaths, injuries, or significant property damage on site, or known off-site deaths, injuries, evacuations, sheltering in place, property damage, or environmental damage.

- Verify your process information.

  Although you have an ongoing responsibility to monitor whether changes to your process or to the quantities stored or handled alter your program level eligibility, your five-year update is an opportunity to verify that each covered process still meets the eligibility criteria for its program level.

  Your five-year update is also an opportunity to check whether the North American Industry Classification System (NAICS) code that you selected as corresponding to your process has changed. Because NAICS was revised in 2002, you should also check that your NAICS code is still valid. The NAICS for construction and wholesale trade changed substantially. A number of other classifications have also been revised. Appendix B contains a partial list of 2002 NAICS codes, and the Census Bureau maintains a website (http://www.census.gov/epcd/www/naics.html) with a complete list of the 2002 NAICS Codes and a list of correspondence between 1997 and 2002 NAICS codes.

- Review your emergency response program or coordination with local officials.

  If your employees will take part in responding to accidental releases, you are required to periodically review and update, as appropriate, your emergency response program and to notify your employees of any changes to your emergency response plan (40CFR 68.95). You must include the date of your most recent review of your emergency response program and most recent training in your re-submission. You should contact your Local Emergency Planning Committee (LEPC) to verify whether your facility is currently included in the community emergency response plan. You should also review and update your procedures for notifying emergency responders in an emergency. These last two steps are particularly important if your employees will not respond to accidental releases.

CHAPTER 10: IMPLEMENTATION

10.1 IMPLEMENTING AGENCY

The implementing agency is the federal, state, or local agency that is taking the lead for implementation and enforcement of part 68 or the state or local equivalent. The implementing agency will review RMPs, select some RMPs for audits, and conduct on-site inspections. The implementing agency should be your primary contact for information and assistance.

WHO IS MY IMPLEMENTING AGENCY?

Under the CAA, EPA will serve as the implementing agency until a state or local agency seeks and is granted delegation under CAA section 112(l) and 40 CFR part 63, subpart E. You should check with the EPA Regional Office to determine if your state or county has been granted delegation or is in the process of seeking delegation. The Regional Office will be able to provide contact names at the state or local level. See http://yosemite.epa.gov/oswer/ceppoweb.nsf/content/regions.htm for addresses and contact information for EPA Regional offices.

IF THE PROGRAM IS DELEGATED, WHAT DOES THAT MEAN?

To gain delegation, a state or local agency must demonstrate that it has the authority and resources to implement and enforce a chemical accident prevention program that is at least as stringent as part 68. Some states and localities may choose to take delegation of the program for some, but not all, of the substances regulated under part 68. In the case of states and localities that take only "partial delegation" of the program, EPA is the implementing agency for the regulated substances not covered by the state or local program.

When EPA determines that a state or local agency has the required authority and resources, EPA may grant the program full or partial approval depending on whether the state or local program covers all or just some regulated substances. For those regulated substances covered, if the state or local rules differ from part 68 (a state's rules are allowed to differ in certain specified respects, as discussed below), EPA will adopt, through rulemaking, the state or local program as a substitute for part 68 in the state or locality, making the state program federally enforceable. In most cases, the state or locality will take the lead in implementation and enforcement, but EPA maintains the ability to enforce the state or local rules which EPA adopted for that jurisdiction. Should EPA decide that it is necessary to take an enforcement action against a facility in a delegated state or locality, the action would be based on the state or local rule that EPA adopted as a substitute for part 68. Similarly, citizen actions under the CAA would be based on the state rules that EPA adopted.

Although states and localities may choose to cover only a subset of part 68 regulated substances, they may not add or delete substances from the part 68 list of regulated substances; only EPA may determine the list of regulated substances for part 68 purposes. States and localities that take delegation are also not free to modify the form and manner of RMP reporting (although they may add to RMP requirements). Any state or local program must require covered facilities to submit RMPs as

provided by part 68, Subpart G. Consequently, even if you are located in a state or local jurisdiction that has taken delegation of the part 68 program, you will continue to file an RMP in the form and manner specified by EPA to the central location EPA designates. You should check with your state to determine whether you need to file additional data for state use or submit amended copies of the RMP with the state to cover state elements or substances.

If your state or locality has been granted delegation, it is important that you contact your state or local implementing agency to determine if the state or locality has requirements in addition to those in part 68. State and local rules may be more stringent than part 68. This document does not cover state and local requirements.

Qs & As
Delegation

Q. What states have been granted delegation?

A. The following states have been granted full or partial delegation:

Delaware Florida Georgia Kentucky Mississippi New Jersey
North Carolina North Dakota Ohio South Carolina

In addition, the following territories and local jurisdictions have been granted delegation: Puerto Rico, the Virgin Islands, Allegheny County (PA), Jefferson County (KY), and Forsythe County (NC).

Check with your EPA Regional office contacts for a current list of states, territories, and counties granted or seeking delegation.

Q. In what ways may state and local rules be more stringent? Does this document provide guidance on state and local differences?

A. States and localities may impose more detailed requirements, such as requiring more documentation or more frequent reporting, specifying hours of training or maintenance schedules, imposing equipment requirements or call for additional analyses. Some states and localities are likely to cover at least some additional chemicals and may use lower thresholds. This document does not cover these differences.

Q. Will the general duty clause be delegated?

A. EPA is not delegating implementation and enforcement of the general duty clause (CAA section 112(r)(1)). States, however, may adopt their own general duty clause under state law.

10.2 REVIEWS/AUDITS/INSPECTIONS (§ 68.220)

The implementing agency is required under part 68 (or a delegated state or local program) to review and conduct audits of RMPs. Reviews are relatively quick

checks of the RMPs to determine whether they are complete and whether they contain any information that is clearly problematic. For example, if an RMP for a process containing flammables fails to list fire and explosion as a hazard in the prevention program, the implementing agency may flag that as a problem. The RMP data system will perform some of the reviews automatically by flagging RMPs submitted without necessary data elements completed.

RMP audits are more comprehensive than reviews. Facilities may be selected for audits based on any of the following criteria, set out in §68.220:

- Accident history of the facility
- Accident history of other facilities in the same industry
- Quantity of regulated substances handled at the site
- Location of the facility and its proximity to public and environmental receptors
- The presence of specific regulated substances
- The hazards identified in the RMP
- A plan providing for random, neutral oversight

WHAT ARE AUDITS AND HOW MANY WILL BE CONDUCTED?

Audits are relatively detailed reviews of RMPs to determine compliance with part 68 and require revisions where necessary to ensure compliance. Audits help identify whether the underlying risk management program is being implemented properly. For example, the implementing agency may look for any inconsistencies in the dates reported for compliance with prevention program elements. If you reported that the date of your last revision of operating procedures was in June 2003 but your training program was last reviewed or revised in December 2001, the implementing agency is likely to ask why the training program was not reviewed to reflect new operating procedures.

The agency may look at other items that could indicate problems with implementation. For example, if you are reporting on a distillation column at a refinery, but used a checklist as your PHA technique, or you fail to list an appropriate set of process hazards for the process chemicals, the agency may seek further explanations as to why you reported in the way you did. The implementing agency may compare your data with that of other facilities in the same industrial sector using the same chemicals to identify differences that may indicate compliance problems.

If audits indicate potential problems, they may lead to requests for more information or to on-site inspections. If the implementing agency determines that problems exist, it may issue a preliminary determination listing the necessary revisions to the RMP, an explanation of the reasons for the revisions, and a timetable. Section 68.220 provides details of the administrative procedures for responding to a preliminary determination.

The number of audits conducted will vary from state to state and from year to year. Neither the CAA nor part 68 sets a number or percentage of facilities that must be

audited during a year. Implementing agencies will set their own goals, based on their resources and particular concerns.

WHAT ARE INSPECTIONS?

Inspections are site visits to check on the accuracy of the data reported in RMPs and on the implementation of all part 68 elements, including risk management program requirements. During inspections, the implementing agency will probably review the documentation for rule elements, such as the PHA reports, operating procedures, maintenance schedules, process safety information, and training. Unlike audits, which may only focus on the RMP but may lead to determinations concerning needed improvements to the risk management program, inspections will focus on the underlying risk management program itself.

Implementing agencies will determine how many inspections they need to conduct. Audits may lead to inspections or inspections may be done separately. Depending on the focus of the inspection (all covered processes, a single process, or particular part of the risk management program) and the size of the facility, inspections may take several hours to several weeks.

10.3 RELATIONSHIP WITH TITLE V PERMIT PROGRAMS

Part 68 is an applicable requirement for purposes of the CAA Title V permit program and must be listed in a Title V air permit. You do not need a Title V air permit solely because you are subject to part 68. If you are required to apply for a Title V permit because you are subject to requirements under some other part of the CAA, you must:

- List part 68 as an applicable requirement in your permit
- Include conditions that require you to either submit a compliance schedule for meeting the requirements of part 68 by the applicable deadlines or include compliance with part 68 as part of your certification statement.

You must also provide the permitting agency with any other relevant information it requests.

The RMP and supporting documentation are not part of the permit and generally should not be submitted to the permitting authority unless specifically requested.

If you have a Title V permit and it does not address the part 68 requirement, you should contact your permitting authority and determine whether your permit needs to be amended to reflect part 68.

10.4 PENALTIES FOR NON-COMPLIANCE

Penalties for violating the requirements or prohibitions of part 68 are set forth in CAA section 113. This section provides for both civil and criminal penalties. EPA may assess civil penalties of not more than $32,500 per day per violation. Anyone convicted of knowingly violating part 68 may also be punished by a fine pursuant to

Title 18 of the U.S. Code or by imprisonment for no more than five years, or both; anyone convicted of knowingly filing false information may be punished by a fine pursuant to Title 18 or by imprisonment for no more than two years.

Qs & As
Audits

Q. If we are a Voluntary Protection Program (VPP) facility under OSHA's VPP program, are we exempt from audits?

A. You are exempt from audits that are based on the accident history of your industry sector or on random, neutral oversight. However, part 68 includes other criteria for deciding what facilities to audit that are not affected by a VPP rating. An implementing agency that is basing its auditing strategy on one of these other criteria may select your facility to audit, although EPA expects that VPP facilities will generally not be a high priority for audits unless they have a serious accident.

Q. If we have been audited by a qualified third party, for ISO 14001 certification or for other programs, are we exempt from audits?

A. No, but you may want to inform your implementing agency that you have gained such certification and indicate whether the third party reviewed part 68 compliance as part of its audit. The implementing agency has the discretion to determine whether you should be audited.

Q. Will we be audited if a member of the public requests an audit of our facility?

A. The implementing agency will have to decide whether to respond to such public requests. EPA's intention is that part 68 implementation reflect that hazards are primarily a local concern.

CHAPTER 11: COMMUNICATION WITH THE PUBLIC

Once you have prepared and submitted your RMP, EPA will make it available to the public. CAA sections 112(r) and 114(c) require that RMPs be made available to the public, except for any classified or confidential business information contained in RMPs or the off-site consequence analysis (OCA) sections of RMPS (sections 2 through 5). Members of the public may obtain copies of RMPs (without the OCA sections) by requesting them from EPA in writing (including by email). Members of the public may also read, but not copy, the OCA sections of RMPs in federal reading rooms. There is a monthly limit on the number of facilities for which any member of the public can view OCA in reading rooms.

In view of the public's access to RMPs, you should expect that your community will discuss the hazards and risks associated with your facility as indicated in your RMP. You will necessarily be part of such discussions. The public and the press are likely to ask you questions because only you can provide specific answers about your facility and your accident prevention program. This dialogue is a most important step in preventing chemical accidents and should be encouraged. You should respond to these questions honestly and candidly. Refusing to answer, reacting defensively, or attacking the regulation as unnecessary are likely to make people suspicious and willing to assume the worst. A basic fact of risk communication is that trust, once lost, is very hard to regain. As a result, you should prepare as early as possible to begin talking about these issues with the community, Local Emergency Planning Committees (LEPCs), State Emergency Response Commissions (SERCs), other local and state officials, and other interested parties.

Another reason that the public and press may ask questions about your facility is the increased concern about domestic terrorism issues since September 11, 2001. The fact that your facility is regulated under the EPA Risk Management Program means that you probably store relatively large quantities of extremely toxic or flammable substances, and people may be concerned about security at your facility.

Communication with the public can be an opportunity to develop your relationship with the community and build a level of trust among you, your neighbors, and the community at large. By complying with the RMP rule, you are taking a number of steps to prevent accidents and protect the community. These steps are the individual elements of your risk management program. A well-designed and properly implemented risk management program will set the stage for informative and productive dialogue between you and your community. The purpose of this chapter is to suggest how this dialogue may occur. In addition, note that some industries have developed guidance and other materials to assist in this process; contact your trade association for more information.

11.1 BASIC RULES OF RISK COMMUNICATION

Risk communication means establishing and maintaining a dialogue with the public about the hazards at your operation and discussing the steps that have been or can be taken to reduce the risk posed by these hazards. Of particular concern under this rule are the hazards related to the chemicals you use and what would happen if you had an accidental release.

Many companies, government agencies, and other entities have confronted the same issue you may face: how to discuss with the public the risks the community is subject to. Exhibit 11-1 outlines seven "rules" of risk communication that have been developed based on many experiences of dealing with the public about risks.

A key message of these "rules" is the importance and legitimacy of public concerns. People generally are less tolerant of risks they cannot control than those they can. For example, most people are willing to accept the risks of driving because they have some control over what happens to them. However, they are generally more uncomfortable accepting the risks of living near a facility that handles hazardous chemicals if they feel that they have no control over whether the facility has an accident. The Clean Air Act's provision for public availability of RMPs gives public an opportunity to take part in reducing the risk of chemical accidents that might occur in their community.

Exhibit 11-1: Seven Cardinal Rules of Risk Communication

1. Accept and involve the public as a legitimate partner
2. Plan carefully and evaluate your efforts
3. Listen to the public's specific concerns
4. Be honest, frank, and open
5. Coordinate and collaborate with other credible sources
6. Meet the needs of the media
7. Speak clearly and with compassion

HAZARDS VERSUS RISKS

Dialogue in the community will be concerned with both hazards and risks; it is useful to be clear about the difference between them.

Hazards are inherent properties that cannot be changed. Chlorine is toxic when inhaled or ingested; propane is flammable. There is little that you can do with these chemicals to change their toxicity or flammability. If you are in an earthquake zone or an area affected by hurricanes, earthquakes and hurricanes are hazards. When you conduct your hazard review or process hazards analysis, you will be identifying your hazards and determining whether the potential exposure to the hazard can be reduced in any way (e.g., by limiting the quantity of chlorine stored on-site).

Risk is usually evaluated based on several variables, including the likelihood of a release occurring, the inherent hazards of the chemicals combined with the quantity released, and the potential impact of the release on the public and the environment. For example, if a release during loading occurs frequently, but the quantity of

chemical released is typically small and does not generally migrate offsite, the overall risk to the public is low. If the likelihood of a catastrophic release occurring is extremely low, but the number of people who could be affected if it occurred is large, the overall risk may still be low because of the low probability that a release will occur. On the other hand, if a release occurs relatively frequently *and* a large number of people could be affected, the overall risk to the public is high.

The rule does not require you to assess risk in a quantitative way because, in most cases, the data you would need to estimate risk levels (e.g., one in 100 years) are not available. Even in cases where data such as equipment failure rates are available, there are large uncertainties in using that data to determine a numerical risk level for your facility, because your facility is probably not the same as other facilities, and your situation may be dynamic. Therefore, you may want to assign qualitative values (high, medium, low) to the risks that you have identified at your facility, but you should be prepared to explain the terms if you do. For example, if you believe that the worst-case release is very unlikely to occur, you must give good reasons; you must be able to provide specific examples of measures that you have taken to prevent such a release, such as installation of new equipment, careful training of your workers, rigorous preventive maintenance, etc. You should also be able to show documentation to support your claim.

WHO WILL ASK QUESTIONS?

Your Local Emergency Planning Committee (LEPC) and other facilities can help you identify individuals in the following groups who may be reviewing RMP data and asking questions. Interested parties may include:

(1) Persons living near the facility and elsewhere in the community or working at a neighboring facility

(2) Local officials from zoning and planning boards, fire and police departments, health and building code officials, elected officials, and various county and state officials

(3) Your employees

(4) Special interest groups including environmental organizations, chambers of commerce, unions, and various civic organizations

(5) Journalists, reporters, and other media representatives

(6) Medical professionals, educators, consultants, neighboring companies and others with special expertise or interests

In general, people will be concerned about accident risks at your facility, how you manage the risks, and potential impacts of an accident on health, safety, property, natural resources, community infrastructure, community image, property values, and other matters. Those individuals in the public and private sector who are responsible for dealing with these impacts and the associated risks also will have an interest in working with you to address these risks.

WHAT INFORMATION ABOUT YOUR FACILITY IS AVAILABLE TO THE PUBLIC?

As noted above, EPA is legally required to make RMPs available to the public, except for any CBI they may contain. Public access to the OCA sections of RMPs is restricted, but the public may still read, if not copy, those sections. Under the regulations governing public access to the OCA sections of RMPs (see 40 CFR Part 1400), any member of the public may read those sections for up to 10 facilities per month, with no restriction on the geographical location of the facilities for which that information is sought. Any member of the public may also read the OCA sections of RMPs for any facility in or potentially affecting the jurisdiction of the local emergency planning committee in which that person lives or works.

Even though most of the contents of RMPs are available to the public, it is likely that people will want additional information. People who request copies of RMPs will be aware that the RMPs they receive do not include the OCA sections. Interested persons may also know that you retain additional information at your facility (e.g., documentation of the results reported in the OCA sections of your RMP) and are required to make it available to EPA or its implementing agency during inspections or compliance audits. Therefore, they may request additional information. EPA encourages you to provide public access to additional information upon reasonable request. If EPA or its implementing agency were to request additional information, it would be available to the public under section 114(c) of the CAA, except for confidential business information and OCA information.

The public may also be interested in other information relevant to risk management at your facility, such as:

- Submissions under sections 302, 304, 311-312, and 313 of the Emergency Planning and Community Right to Know Act (EPCRA) reporting on chemical storage and releases, as well as the community emergency response plan prepared under EPCRA section 303

- Other reports on hazardous materials made, used, generated, stored, spilled, released and transported, that you submitted to federal, state, and local agencies

- Reports on workplace safety and accidents developed under the Occupational Safety and Health Act that you provide to employees, who may choose to make the information publicly available, such as medical and exposure records, chemical data sheets, and training materials

- Any other information you have provided to public agencies that can be accessed by members of the public under the federal Freedom of Information Act and similar state laws (and that may have been made widely available over the Internet)

- Any published materials on facility safety (either industry- or site-specific), such as agency reports on facility accidents, safety engineering manuals and textbooks, and professional journal articles on facility risk management, for example

11.2 SAMPLE QUESTIONS FOR COMMUNICATING WITH THE PUBLIC

Smaller businesses may not have the resources or time to develop the types of outreach programs, described later in this chapter, that many larger chemical companies have used to handle public questions and community relations. For many small businesses, communication with the public will usually occur when you are asked questions about information in your RMP. It is important that you respond to these questions constructively. Go beyond just answering questions; discuss what you have done to prevent accidents and work with the community to reduce risks. The people in your community will be looking to you to provide answers.

To help you establish a productive dialogue with the community, the rest of this section presents questions you are likely to be asked and a framework for answering them. These are elements of the public dialogue that you may anticipate. The person from your facility designated as responsible for communicating with the public should review the following and talk to other community organizations to determine which questions are most likely to be raised and identify other foreseeable issues. Remember that others in the community, notably LEPCs and other emergency management organizations are also likely to be asked these and other similar questions. You should consider the unique features of your facility, your RMP, and your historical relationship with the community (e.g., prior accidents, breakdowns in the coordination of emergency response efforts, and management-labor disputes), and work together with these other organizations to answer these questions for your situation and to resolve the issues associated with them.

What does your worst-case "distance to endpoint" or release distance mean?

The distance is intended to provide an estimate of the maximum possible area that might be affected by a catastrophic release from your facility. It is intended to ensure that no potential risks to public health are overlooked, but the distance to an endpoint estimated under worst-case conditions should not be considered a "public danger zone."

In most cases, the mathematical models used to analyze the worst-case release scenario as defined in the rule may overestimate the area that would be impacted by a release. In other cases, the models may underestimate the area. For distances greater than approximately six miles, the results of toxic gas dispersion models are especially uncertain, and you should be prepared to discuss such possibilities in an open, honest manner.

Reasons that modeling may underestimate the distance generally relate to the inability of some models to account for site-specific factors that might tend to increase the actual endpoint distance. For example, assume a facility is located in a river valley and handles dense toxic gases such as chlorine. If a release were to occur, the river valley could channel the toxic cloud much farther than it might travel if it were to disperse in a location with generally flat terrain. In such cases, the actual endpoint distance might be longer than that predicted using generic lookup tables.

Reasons that the area may be overestimated include:

- For toxics, the weather conditions (very low wind speed, calm conditions) assumed for a worst-case release scenario are uncommon and probably would not last as long as the time the release would take to travel the distance estimated. If weather conditions are different, the distance to endpoint would be much shorter, because the release would be dispersed, and in the process diluted, more quickly.

- For flammables, although explosions can occur, a release of a flammable is more likely to disperse harmlessly or burn. If an explosion does occur, however, debris from the blast could affect an even broader area than would be indicated by the distance to endpoint for the flammable substance.

- In general, some models cannot take into account other site-specific factors that might tend to disperse the chemicals more quickly and limit the distance.

Note: When estimating worst case release distances, the rule does not allow facilities to take into account active mitigation systems and practices that could limit the scope of a release. Specific systems (e.g., monitoring, detection, control, pressure relief, alarms, mitigation) may limit a release or prevent the failure from occurring. Also, if you are required to analyze alternative release scenarios (i.e., if your facility is in Program 2 or Program 3), these scenarios are generally more realistic than the worst case, and you can offer to provide additional information on those scenarios.

What does it mean that we could be exposed if we live/work/shop/go to school X miles away?

(For an accident involving a flammable substance):

The distance means that people who are in that area around the facility could be hurt if the contents of a tank or other vessel exploded. The blast of the explosion could shatter windows and damage buildings. Injuries would be the result of the force of the explosion and of flying glass or falling debris.

(For an accident involving a toxic substance):

The distance is based on a concentration of the chemical that you could be exposed to for an hour without suffering irreversible health effects or other symptoms that would make it difficult for you to escape. If you are within that distance, you could be exposed to a greater concentration of the chemical. If you were exposed to higher levels for an extended period of time (10 minutes, 30 minutes, or longer), you could be seriously hurt. However, that does not mean that you would be. Remember, for worst case scenarios, the rule requires you to make certain conservative assumptions with respect to, for example, wind speed and atmospheric stability. If the wind speed is higher than that used in the modeling, or if the atmosphere is more unstable, a chemical release would be dispersed more quickly, and the distances would be much smaller and the exposure times would be shorter. If the question pertains to an alternative release scenario, you probably assumed typical weather conditions in the modeling. Therefore, the actual impact distance could be shorter or longer, and you should be prepared to acknowledge this and clearly explain how you chose the conditions for your release scenario.

In general, the possibility of harm depends on the concentration of the chemical you are exposed to and the length of time you are exposed.

If there is a worst-case accident, will everyone within that distance be hurt? What about property damage?

It is important to remember that worst-case scenarios are very unlikely. In general, even if a very large accidental release did occur, not everyone within the circle defined by the worst-case distance to endpoint would be hurt.

In analyzing the potential consequences of a worst-case release, we look at two types of chemicals - toxics and flammables. Releases of flammables do not usually lead to explosions; released flammables are more likely to disperse without igniting. If the released flammable does ignite, a fire is more likely than an explosion, and fires are usually concentrated at the facility.

For an explosion, everyone within the distance-to-endpoint circle would certainly feel the blast wave since it would move in all directions at once. However, while some people within the circle could be hurt, it is unlikely that everyone would be since some people would probably be in less vulnerable locations. Most injuries would probably be due to the effects of flying glass, falling debris, or impact with nearby objects.

For toxic chemicals, whether someone within the circle is hurt by a release depends on many factors. First, the released chemicals would usually move in the direction of the wind (except for some dense gases, which may be constrained by terrain features to flow in a different direction). Generally, only people downwind from the facility would be at risk of exposure if a release occurred, and this is normally only a part of the population inside the circle. If the wind speed is moderate, the chemicals would disperse quickly, and people would be exposed to lower levels of the chemical. If the release is stopped quickly, they might be exposed for a very short period time, which is less likely to cause injury. However, if the wind speed is low or the release continues for a long time, exposure levels will be higher and more dangerous. The population at risk would be a larger proportion of the total population inside the circle. You should be prepared to discuss both possibilities.

Generally, it is the people who are closest to the facility — within a half mile or less — who would face the greatest danger if a large accident occurred.

Damage to property and the environment will depend on the type of chemical released. In an explosion, environmental impacts and property damage may extend beyond the distance at which injuries could occur. For a vapor release, environmental effects and property damage may occur as a result of the reactivity or corrosivity of the chemical or toxic contamination.

How sure are you of your endpoint distances?

Perhaps the largest single difficulty associated with hazard assessment is that different models and modeling assumptions will yield somewhat different results. There is no one model or set of assumptions that will yield "certain" results. Models represent scientists' best efforts to account for all the variables involved in an accidental release. While all models are generally based on the same physical principles, dispersion modeling is not an exact science due to the limited opportunity for real-world validation of results. No model is perfect, and every model represents a somewhat different analytical approach. As a result, for a given scenario, people can use different consequence models and obtain estimates of the distance to the toxic endpoint that in some situations might vary by a factor of ten. Even using the same model, different input assumptions can cause wide variations in the predictions. It follows that, when you present a single value as your best estimate of the endpoint distance, others will be able to claim that the answer ought to be different, perhaps greater, perhaps smaller, depending on the assumptions used in modeling and the choice of model itself.

You therefore need to recognize that your estimated distance lies within a considerable band of uncertainty, and to communicate this fact to those who have an interest in your results. A neighboring facility handling the same covered substances as you do may have come up with a different result for the same scenario for these reasons.

If you use EPA's *RMP Offsite Consequence Analysis Guidance* or one of the industry-specific guidance documents that EPA has developed, you will be able to address the issue of uncertainty by stating that the results you have generated are conservative (that is, they are likely to overestimate distances). However, if you use other models, you will have to provide your own assessment of where your specific estimate lies within the plausible range of uncertainties.

Why do you need to store so much on-site?

If you have not previously considered the feasibility of reducing the quantity, you should do so when you develop your risk management program. Many companies have cited public safety concerns as a reason for reducing the quantities of hazardous chemicals stored on-site or for switching to non-hazardous substitutes. If you have evaluated your process and determined that you need a certain volume to maintain your operations, you should explain this fact to the public in a forthright manner. As appropriate, you should also discuss any alternatives, such as reducing storage quantities and scheduling more frequent deliveries. Perhaps these options are feasible - if so, you should consider implementing them; if not, explain why you consider these alternatives to be unacceptable. For example, in some situations, more frequent deliveries would mean more trucks carrying the substance through the community on a regular basis and a greater opportunity for smaller-scale releases because of more frequent loading and unloading.

What are you doing to prevent releases?

If you have rigorously implemented your risk management program, this question will be your chance, if you have not already done so, to tell the community about your prevention activities, the safe design features of your operations, the specific activities that you are performing such as training, operating procedures, maintenance, etc., and any industry codes or standards you use to operate safely. If you have installed new equipment or safety systems, upgraded training, or had outside experts review your site for safety (e.g., insurance inspectors), you could offer to share the results. You may also want to mention state or federal rules you comply with.

What are you doing to prepare for releases?

For such questions, you will need to talk about the coordination that you have done with the local fire department, LEPC, or mutual aid groups. Such coordination may include activities such as defining an incident command structure, developing notification protocols, conducting response training and exercises, developing mutual aid agreements, and evaluating public alert systems. This description is particularly important if your employees are not designated or trained to respond to releases of regulated substances.

If your employees will be involved in a response, you should describe your emergency response plan and the emergency response resources available at the facility (e.g., equipment, personnel), as well as through response contractors, if appropriate. You also may want to indicate the types of events for which such resources are applicable. Finally, indicate your schedule for internal emergency response training and drills and exercises and discuss the results of the latest relevant drill or exercise, including problems found and actions taken to address them.

Do you need to use this chemical?

Again, if you have not yet considered the feasibility of switching to a non-hazardous substitute, you should do so when you develop your risk management program. Assuming that there is no substitute, you should describe why the chemical is critical to what you produce and explain what you do to handle it safely. If there are substitutes available, you should describe how you have evaluated such options.

Why are your distances different from the distances in the EPA lookup tables?

If you did your own modeling, this question may come up. You should be ready to explain in a general way how your model works and why it produces different results. EPA allows using other models (as long as certain parameters and conditions specified by the rule are met) because it realizes that EPA lookup table results will not necessarily reflect all site-specific conditions.

In addition, although all models are generally based on the same physical principles, dispersion modeling is not an exact science due to the limited opportunity for real-world validation of the results. Thus, the method by which different models combine the basic factors such as wind speed and atmospheric stability can result in distances that readily vary by a factor of two (e.g., five miles versus ten miles). The introduction of site-specific factors can produce additional differences.

EPA recognizes that different models will produce differing estimates of the distance to an endpoint, especially for releases of toxic substances. The Agency has provided a discussion of the uncertainties associated with the model it has adopted for the OCA Guidance. You need to understand that the distances produced by another model lie within a band of uncertainty and be able to demonstrate and communicate this fact to those who are reviewing your results.

How likely are the worst-case and alternative release scenarios?

It is generally not possible to provide accurate numerical estimates of how likely these scenarios are. EPA has stated that providing such numbers for accident scenarios rarely is feasible because the data needed (e.g., on rates for equipment failure and human error) are not usually available. Even when data are available, there are large uncertainties in applying the data because each facility's situation is unique.

In general, the risk of the worst-case scenario is very low. Although catastrophic vessel failures have occurred, they are rare events. Combining them with worst-case weather conditions makes the overall scenario even less likely. This does not mean that such events cannot or will not happen, however.

For the alternative scenario, the likelihood of the release is greater and will depend, in part, on the scenario you chose. If you selected a scenario based on your accident history or industry accident history, you should explain this to the public. You should also discuss any steps you are taking to prevent such an accident from recurring.

Is the worst-case release you reported really the worst accident you can have?

The answer to this question will depend on the type of facility you have and how you handle chemicals. EPA defined a specific scenario (failure of the single largest vessel) to provide a common basis of comparison among facilities nationwide. So, if you have only one vessel, EPA's worst case is likely to be the worst event you could have.

On the other hand, if you have a process which involves multiple co-located or interconnected vessels, it is possible that you could have an accident more severe than EPA's worst case scenario. If credible scenarios exist that could be more serious (in terms of quantities released or consequences) than the EPA worst case scenario, you should be ready to discuss them. For example, if you store chemicals in small containers such as 55-gallon drums, the EPA-defined worst-case release scenario involves a release from only one container, but a fire or explosion at the facility could release larger quantities if multiple containers are involved. In this case, you should be ready to frankly discuss such a scenario with the public. If you take precautions to prevent such scenarios from occurring, you should explain these precautions also. If an accidental release is more likely to involve multiple drums than a single drum as a result, for example, of the drums being stored closely together, then you must select such a scenario as your alternative release scenario so that information on this scenario is available in your RMP.

Chemical manufacturers may want to talk about releases that could result from runaway reactions that could continue for several hours. This type of event could result in longer exposure times.

What about the accident at the [name of similar facility] that happened last month?

This question highlights an important point: you need to be aware of events in your industry (e.g., accidents, new safety measures) for two reasons. First, your performance likely will be compared to that of your competitors. Second, learning about the circumstances and causes of accidents at other facilities like yours can help you prevent such accidents from occurring at your facility.

If information is available on accidents that happen at facilities similar to yours (e.g., from reports, case studies, journal articles, or other sources), you should be familiar with and have evaluated whether your facility is at risk for similar accidents. You should take the appropriate measures to prevent the accident from occurring and be prepared to describe these actions. If your facility has experienced a similar release in the past, this information may be documented in your accident history or other publicly available records, depending on the date and nature of the incident, the quantity released, and other factors. If you have already taken steps specifically designed to address this type of accident, whether as a result of this accident, a prior accident at your facility, or other internal decision-making, you should describe these efforts. If, based on your evaluation, you determine that the accident could not occur at your facility, you should discuss the pertinent differences between the two facilities and explain why you believe those differences should prevent the accident from occurring at your facility.

What actions have you taken to involve the community in your accident prevention and emergency planning efforts?

If you have not actively involved the community in accident prevention and emergency planning in the past, you should acknowledge this as an area where you could improve and start doing so as you develop your risk management program. The emergency response provisions of part 68 require you to coordinate with your LEPC and/or local fire department, depending on whether your facility holds toxics and/or flammable substances. More generally, you may want to become an active participant in the LEPC, SERC, and regional mutual aid organizations serving your area. Other opportunities for community involvement are fire safety coordination activities with the local fire department, joint training and exercises with local public and private sector response personnel, the establishment of green fields between the facility and the community, and similar efforts.

When discussing accident prevention and emergency planning with the community, you should indicate any national programs in which you participate, such as the Chemical Manufacturers Association's Responsible Care program or Community Awareness and Emergency Response program or OSHA's Voluntary Protection Program. If fully implemented, these programs can help improve the safety of the facility and the community. You may have future plans to participate in areas described previously or have new initiatives associated with the risk management program. Be sure you ask what else the community would like you to do and explain how you will do it.

Can we see the documentation you keep on site?

If the requested information is not confidential business information, EPA encourages you to make it available to the public in a reasonable manner. (Since the OCA sections of your RMP are available to the public on a restricted bases, it makes sense that the documentation underlying those sections be made available in a manner that reflects its sensitivity.) Although you are not required to provide this information to the public, refusing to provide it simply because you are not compelled to is not the best approach. If you decide not to provide any or most of this material, you should have good reasons for not doing so and be prepared to explain these reasons to the public. Simply taking a defensive position or referring to the extent of your legal obligations is likely to threaten the effectiveness of your interaction with the community. Offer as much information as possible to the public; if particular documents would reveal proprietary information, try to provide a redacted copy, summary, or some other form that answers the community's concerns. You may want to work with your LEPC on this issue. You should also be aware that information that EPA or the implementing agency obtains as part of an inspection or investigation conducted under section 114 of the Clean Air Act would be available to the public under section 114(c) of the Act to the extent it does not reveal confidential business information or OCA information.

11.3 COMMUNICATION ACTIVITIES AND TECHNIQUES

Although this section is most applicable to larger companies, small businesses may want to review it and use some of the ideas to expand their communications with the public. To prepare for effective communication with the community, you should:

(1) Adopt an organizational policy that includes basic risk communication principles (see exhibit 11-1)

(2) Assign responsibilities and resources to implement the policy

(3) Plan to use "best communication practices"

ADOPT AN ORGANIZATIONAL COMMUNICATIONS POLICY

An organizational policy will support communication with the public on your RMP and make it an integral part of management practices. Otherwise, breakdowns are likely to occur, which could cause mistrust, hostility and conflicts.

A policy helps to establish communication as a normal organizational function and to present it as an opportunity rather than a burden or threat. The policy can be incorporated in an organization's policies, an approach taken by many companies who belong to the Responsible Care program of the Chemical Manufacturers Association (CMA). These companies have adopted CMA's Codes of Management Practices, which contain risk communication principles and practices.

Remember that what you communicate is more important than the type of communication policy or program you use, and what you actually *do* to maintain a safe facility is more important than anything you say. Your company's safety and prevention steps in your risk management program should serve as the core elements of any risk communication program.

ASSIGN RESPONSIBILITIES AND RESOURCES

A policy is only a paper promise until it is regularly and effectively implemented. Thus, you should follow up your communication policy by (1) having top management participate at the outset and at key points throughout the communication process, and (2) assigning communication responsibilities within your organization and providing the necessary resources.

Experience has demonstrated that assigning responsibility to knowledgeable managers, plant engineers, and staff and encouraging participation by employees, (most of whom are likely to be community residents) is a good communications practice. Delegating communication functions to outside technical consultants, attorneys, and public relations specialists has repeatedly failed to impress the community and even tends to incur mistrust. (However, if you hired a firm with acknowledged expertise in dispersion modeling, you may want them on hand to help respond to technical questions.)

Communications staff will need work time and resources to prepare presentation materials, hold meetings with interested persons in the community, and do other work necessary to respond to questions and concerns and maintain ongoing dialogue. A training program in communication skills and incentives for good performance also may be advisable.

Organizations have a legitimate interest in preventing disclosure of confidential business information or statements that inadvertently and unfairly harm the organization or its employees. Thus, you should assure that your risk communication staff is instructed on how to deal with situations that pose these problems. This may mean that you have an internal procedure enabling your staff to bring such situations to top management and legal counsel for quick resolution, keeping in mind that unduly defensive or legalistic responses that result in restricting the amount of information that is provided can damage or destroy the risk communication process.

Your communication staff may find the following steps helpful in addressing the priority issues in the communication process:

Prior to RMP Submittal

- Enlist employee support for, and involvement in, the communication process
- Build on work you have done with your LEPC, fire department, and local officials, and gain their insights
- Incorporate technical expertise, management commitment, and employee involvement in the risk communication process
- Use your RMP's executive summary to begin the dialogue with the community; be sure you have taken all of the steps you present
- Taking a community perspective, identify which data elements need to be clarified, interpreted, or amplified, and which are most likely to raise community concerns; then compile the information needed to respond and determine the most understandable methods (e.g., use of graphics) for presenting the information

At Submittal

- Review the RMP to assure that you are familiar with its data elements and how they were developed. In particular, review the hazard assessment, prevention, and response program features, as well as documentation of the methods, data, and assumptions used, especially if an outside consultant performed the analyses and developed these materials. You have certified their accuracy and your spokesperson should know them intimately, as they reflect your plan
- Review your performance in implementing the prevention and response programs and prepare to discuss problems identified and actions taken
- Review your performance in investigating accidents and prepare to discuss any corrective actions that followed

Other Steps

- Identify the most likely concerns about risks identified in the RMP but not fully addressed, consult with management and safety engineering, and determine additional measures the organization will take to resolve these concerns
- Avoid misrepresentations and minimize the roles of public relations specialists
- Identify "best communication practices" (as described in the next section) and plan how to use them

USE "BEST COMMUNICATION PRACTICES"

Many facilities already have gained considerable experience in communicating with the public. Lessons from their experiences are described below. However, the value of these best practices and your credibility will depend on your facility's possession and ongoing demonstration of certain essential qualities:

- Top management commitment (e.g., owner and facility manager) to improving safety
- Honesty, openness, and concern for the community
- Respect for public concerns and perceptions
- Commitment to maintaining a dialogue with all sectors of the community, to learning from this dialogue, and to being prepared to change your practices to make your facility more safe
- Commitment to continuous improvement through internal procedures for evaluating incidents and promoting organizational learning
- Knowledge of safety issues and safety management methods
- Good working relationships with the LEPC, fire department, and other local officials
- Active support for the LEPC and related activities
- Employee support and commitment
- Continuation of commitment despite potential public hostility or mistrust

Another note: Because each facility and community involves a unique combination of factors, the practices used to achieve good risk communication in one case do not necessarily ensure the same quality result when used in another case. Therefore, while it is advisable for you to review such experience to identify "best communication practices," you should carefully evaluate such practices to determine

if they can be adapted to fit your unique circumstances. For example, if your facility is in the middle of an urban area, you probably will use different approaches than you would use if it were located in an industrial area far from any residential populations. These practices are complementary approaches to delivering your risk management message and responding to the concerns of the community.

With these cautions in mind, a number of "best" practices are outlined below for consideration. First, you will want to establish formal channels for information-sharing and communication with stakeholders. The most basic approaches include:

- Convene public meetings for discussion and dialogue regarding your risk management program and RMP and take steps to have the facility owner or manager and all sectors of the community participate, including minorities and low-income residents

- Arrange meetings with local media representatives to facilitate their understanding of your risk management program and the program summary presented in your RMP

- Establish a repository of information on safety matters for the LEPC and the public and, if electronic, provide software for public use. Some organizations also have provided computer terminals for public use in the community library or fire department

Other, more resource-intensive activities of this type to consider include:

- Create and convene focus groups (small working groups) to facilitate dialogue and action on specific concerns, including technical matters, and take steps to assure that membership in each group reflects a cross section of the community and includes technically trained persons (e.g., engineers, medical professionals)

- Hold seminars on hypothetical release scenarios, prevention and response programs, applicable standards and industry practices, analytic methods and models (e.g., on dispersion of airborne releases, health effects of airborne concentrations), and other matters of special concern or complexity

- Convene special meetings to foster dialogue and collaborations with the LEPC and the fire department and to establish a mutual assistance network with other facility managers in the community or region

- Establish hot lines for telephone and e-mail communications between interested parties and your designated risk communication staff and, if feasible, a web site for posting useful information

In all of these efforts, remember to use plain language and commonly understood terms; avoid the use of acronyms and technical and legal jargon. In addition, depending on your audience, keep in mind that the preparation of multilingual materials may be useful or even necessary.

Secondly, you may want to initiate or expand programs that more directly involve the community in your operations and safety programs. Traditional approaches include:

- Arrange facility tours so that members of the public can view operations and discuss safety procedures with supervisors and employees
- Schedule drills and simulations of incidents to demonstrate how prevention and response programs work, with participation by community responders and other organizations (e.g., neighboring companies)
- Conduct a "Safety Street" - a community forum generally sponsored by several industries in a locality, where your representatives present facility safety information, explain risks, and respond to public questions (see Section 11.4 for a reference to more information on this program)
- Periodically reaffirm and demonstrate your commitment to safety in accordance with and beyond regulatory requirements and present data on your safety performance, using appropriate benchmarks or measures, in newsletters and by posting the information at your web site
- Publicly honor and reward managers and employees who have performed safety responsibilities in superior fashion and citizens who have made important contributions to the dialogue on safety

If community interest is significant, you may also want to consider the following activities:

- Invite public participation in monitoring implementation of your risk management program elements
- Invite public participation in auditing your performance in safety responsibilities, such as chemical handling and tracking procedures and analysis and follow-up on accidents and near misses
- Organize a committee comprised of representatives from the facility, other industry, emergency planning and response organizations, and community groups and chaired by a community leader to independently evaluate your safety and communication efforts (e.g., a Community Advisory Panel). You may also want to finance the committee to pay for an independent engineering consultant to assist with technical issues and learn what can be done to improve safety, and thereby share control with the community

Your communication staff should review these examples, consider designing their own activities as well as joint efforts with other local organizations, and ultimately decide with the community on which set of practices are feasible and can best create a healthy risk communication process in your community. Once these decisions are made, you may want to integrate the chosen set of practices in an overall communication program for your facility, transform some into standard procedures, and monitor and evaluate them for continuous improvement.

OTHER COMMUNICATION OPPORTUNITIES

By complying with the RMP rule and participating in the communications process with the community, you should have developed a comprehensive system for preventing, mitigating, and responding to chemical accidents at your facility. Why not share this knowledge with your staff, others you do business with (e.g., customers, distributors, contractors), and, perhaps through industry groups, others in your industry? If you transfer this knowledge to others, you can help improve their chemical safety management capabilities, enhance public safety beyond your community, and possibly gain economic benefits for your organization.

11.4 FOR MORE INFORMATION

Among the numerous publications on risk communication, the following may be particularly helpful:

- *Improving Risk Communication*, National Academy Press, Washington, D.C., 1989
- "Safety Street" and other materials on the Kanawha Valley Demonstration Program, Chemical Manufacturers Association, Arlington, VA
- Community Awareness and Emergency Response Code of Management Practices and various Guidance, Chemical Manufacturers Association, Arlington, VA
- *Communicating Risks to the Public*, R. Kasperson and P. Stallen, eds., Kluwer Publishing Co., 1991
- "Challenges in Risk and Safety Communication with the Public," S. Maher, Risk Management Professionals, Mission Viejo, CA, April 1996
- Primer on Health Risk Communication Principles and Practices, Agency for Toxic Substances and Disease Registry, on the World Wide Web at atsdr1.atsdr.cdc.gov:8080
- *Risk Communication about Chemicals in Your Community: A Manual for Local Officials*, US Environmental Protection Agency, EPA EPCRA/Superfund/RCRA/CAA Hotline
- *Risk Communication about Chemicals in Your Community: Facilitator's Manual and Guide*, US Environmental Protection Agency, EPA EPCRA/Superfund/RCRA/CAA Hotline
- *Chemicals, the Press, and the Public: A Journalist's Guide to Reporting on Chemicals in the Community*, US Environmental Protection Agency, EPA EPCRA/Superfund/RCRA/CAA Hotline